THE Business History REVIEW

W. WOODRUFF
History and the Businessman 241

HOWARD R. DELANCY
The Cole Motor Car Company 260

ERIC L. WAUGH
Railroads and the Changing Face of Britain, 1825–1901 274

OLIVER KNIGHT
Oil — Canada's New Wealth 297

RALPH W. HIDY
Some Implications of the Recent Literature on the History of the Petroleum Industry: A Review Article 329

Books Reviewed
ARE LISTED ON THE INSIDE FRONT COVER

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PAGE

Harold F. Williamson and Kenneth H. Myers, II, *Designed for Digging, The First 75 Years of Bucyrus-Erie Company.* Reviewed by John B. Rae 347

Arthur Menzies Johnson, *The Development of American Petroleum Pipelines: A Study in Private Enterprise and Public Policy, 1862–1906.* Reviewed by Elizabeth Bricker Currier 348

Allan G. Bogue, *Money at Interest. The Farm Mortgage on the Middle Border.* Reviewed by Lewis Atherton . . . 350

Donald L. McMurry, *The Great Burlington Strike of 1888: A Case History in Labor Relations.* Reviewed by Robert A. Christie 351

Horace B. Powell, *The Original Has This Signature—W. K. Kellogg.* Reviewed by F. W. Tuttle 353

Booton Herndon, *Bergdorf's on the Plaza: The Story of Bergdorf Goodman and a Half-Century of American Fashion.* Reviewed by James H. Soltow 355

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By W. Woodruff
PROFESSOR OF ECONOMIC HISTORY
AT UNIVERSITY OF ILLINOIS

History and the Businessman*

The distinguishing aspect of business in modern times, particularly in the United States, is that it has permeated the entire fabric of civilization. Historical interpretations of this circumstance have been in sharp conflict and have tended toward extremes. The wave of national self-criticism of the early twentieth century focused attention on the shortcomings of business, ignoring its constructive aspects. On the other hand, the modern revisionist school of historians, depicting the businessman not as a "robber baron" but as an "architect of material greatness," has been prone to stress ends ahead of means and to overlook the deeper implications of the businessman's role in society as a whole. True perspective is not afforded by either of these opposing academic positions, nor is it likely to be gained by further blind amassing of facts-in-isolation on the part of business historians. A general theory of business evolution is needed — one that neither praises nor blames the businessman but seeks to locate him in the larger context of human experience.

Introduction

In the six thousand years of which we have knowledge, man has passed through many different civilizations. There are those of the Asian and American continents seen dimly through the shadows of the past, as well as the more recent western civilization from which we, ourselves, have risen. Only in the very recent past has man dwelt in an industrial civilization. And only today, especially in the United States, have we become aware of some of the social implications accompanying the extension of the power and dominion of the businessman.[1]

* This article was presented as a paper at the Midwest Conference of Business Historians, University of Indiana, April 21–22, 1956. For comments and criticisms the author is indebted to many friends, especially to Henrietta Larson, Ralph and Muriel Hidy, Frank H. Knight, Marvin Frankel, Clyde Jones, Paul Koefod, and Sam Weiner.

[1] I will not detain the reader by discussing the changing concept of the businessman. The whole article might well be given up to this topic. I shall simply say that while we normally identify the businessman with the concept of private gain and capital accumulation, a study of European literature reveals many different social and historic categories of businessmen whose economic behavior has not always been the same. To apply the characteristics of present-

The essential point about the society which has emerged in this country is not that it reflects the economic power of the businessman – there is abundant evidence of this in the ancient cities of Alexandria, Lubeck, Florence, Antwerp and Venice, as well as in the history of the Dutch business empire of the first half of the seventeenth century [2] – the essential point is rather that the basic beliefs and values of business life have permeated the whole of society. It is this phenomenon, more than any other, which has added a uniqueness to our own age and problems.

While the responsibility for deciding what the inner significance of this change shall prove to be belongs to the future, it is evident to us all that we are passing through a period of rapid transition in ideas and outlook. The social invention of the market – the product of earlier centuries – no longer occupies the place it did in other times. Much greater demands are being made of the businessman today than the meeting of physical needs and the providing of employment through profit and capital accumulation.[3] To make a detailed examination of the origins and effects of these demands would take us outside the scope of this article which merely hopes to cast light on the present conflicting opinions regarding the businessman's role in the past, as well as to show that the depth and urgency of the problems of a business civilization cannot be understood without perspective. Whether even these limited aims can be pursued successfully without the employment of a general theory as a method of analysis of business history – or, more importantly in the absence of a constructive synthesis of the various views of the businessman in history – is a matter raised here for discussion.

The Era of Condemnation

The conventional method adopted by historians to provide perspective has been to contrast American business activities before and after the Civil War. While such an approach is not without its dangers – for it gives the impression of clear-cut divisions in history that rarely exist – it does at least provide us with a landmark in what is to most people an extremely confusing landscape.

Until the mid-nineteenth century at least the quest for wealth

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day business life to earlier civilizations is, of course, to provide ourselves with a most unsatisfactory explanation of the past.

[2] Miriam Beard, *A History of the Business Man* (New York, 1938).

[3] Theodore Levitt, *The Twilight of the Profit Motive* (Washington, D. C., 1955).

was tempered by a strong sense of moral obligation – the conduct of eighteenth-century businessmen such as John Woolman being offered as an example of the combination of profit and piety which characterized the lives of earlier merchants.[4] With the peace of Appomattox, however, the balanced tension between profit and piety is supposed to have broken down; the dynamic conditions of the post-bellum period, with all its challenges and opportunities providing a fertile soil for the teachings of Herbert Spencer and William Graham Sumner.[5] The future belonged to the fittest, if not to the best. Andrew Carnegie might try to temper the growing passion to accumulate wealth for wealth's sake by appealing to the ideals of social stewardship, but it was an appeal that went largely unheeded – even in his own corporation. Little wonder that Gustavus Myers and Matthew Josephson were led to castigate many of the new industrialists and financiers as "robber barons" – prepared to go to any lengths in their haste to be rich[6]; or that Thorstein Veblen, with biting cynicism, should have dismissed the *nouveau riche* as a group of saboteurs.[7]

Thus did the abuses – real or imagined – accompanying the rapid industrialization and the concentration of economic power earn for the businessman the censure of society. Yet it hardly needs to be stressed here that the resentment and bitterness felt against the businessman in the closing decades of the nineteenth and the early years of the twentieth century stemmed not only from the supposed predatory habits of big business, but also from the wave of national self-criticism[8] which arose out of the peculiar economic, social, and political problems accompanying the closing – and here I use the term in the widest possible sense concerning the historical development of a civilization – of the American frontier.

It is not the purpose here to determine the extent to which the

[4] "The Moral History of U. S. Business," *Fortune*, Vol. 40 (Dec., 1949), 143. There are too many references to be set down here. The best guide to the materials for the study of American business history remains the one prepared by Henrietta M. Larson, *Guide to Business History* (Cambridge, 1948).

[5] Herbert Spencer, *Social Statics; Or, the Conditions Essential to Human Happiness* (New York, 1866); and William G. Sumner, *What Social Classes Owe to Each Other* (New York, 1883). See also, Richard Hofstadter, *Social Darwinism in American Thought* (Rev. ed.; Boston, 1955), pp. 31–66.

[6] Matthew Josephson, *The Robber Barons* (New York, 1934); and Gustavus Myers, *History of the Great American Fortunes* (New York, Modern Library Edition).

[7] Thorstein Veblen, *The Theory of Business Enterprise* (New York, 1912), pp. 27–49, 268–301.

[8] Van Wyck Brooks, *The Confident Years: 1885–1915* (New York, 1952), p. 384.

resentment against business sprang from the triumph of an ambitious industrialism over the Jeffersonian dream of a rural democracy, or from a prostrate South humiliated by the iniquities of the postwar administration. Whatever truth lies in these explanations, we shall never understand this period in American history unless we appreciate that so much of the anti-business bias which developed in the decades after the Civil War, whether expressed in economic or political terms, sprang from an ethical and even a religious passion. Indeed, if time permitted, it would be interesting to explore the historic and social antecedents of this movement, especially to compare and contrast the growth of anti-business bias in Europe and America. It will suffice to say here, however, that justified or not, the businessman became the focal point of this movement of protest, the political side of which was expressed through the Populist and later the Progressive Party. Whether seen through the fiction and poetry of the time – and though the importance of novelists and poets ought not to be exaggerated they did express and help to shape the outlook of the age – or in the more detailed scrutinies of the economic, political, and social institutions to be found in the writings of the Adams family, Charles A. Beard, and Vernon L. Parrington, the degenerative and corrosive influences of a business civilization were explored.[9] To these writers must be added the small group of journalists such as Ida Tarbell, Lincoln Steffens, and Thomas Lawson, whose dramatic contribution to the forming of an anti-business idiom in American society earned for them the unenviable title of the "muckrakers." [10]

While these years were not without some praise for the creative role of the new class of manufacturers and financiers,[11] the indictments of businessmen generally went unanswered. With the exception of Carnegie and one or two other industrialists, most businessmen continued to ignore the battle of ideas,[12] devoting them-

[9] Henry Adams, *The Education of Henry Adams* (Boston, 1918); *Charles F. Adams, 1835–1915. An Autobiography* (New York, 1916); Brooks Adams, *The Law of Civilization and Decay* (New York, 1943); Charles A. Beard, *An Economic Interpretation of the Constitution of the United States* (New York, 1913); Vernon L. Parrington, *Main Currents in American Thought* (3 Vols.; New York, 1927); Merle Curti, *The Growth of American Thought* (New York, 1943).

[10] Ida M. Tarbell, *The History of the Standard Oil Company* (2 Vols.; New York, 1904); Joseph Lincoln Steffens, *Autobiography* (New York, 1931); Thomas W. Lawson, *Frenzied Finance* (New York, 1905).

[11] Edward N. Saveth, "What Historians Teach About Business," *Fortune*, Vol. 45 (April, 1952), 168–70.

[12] A call to do otherwise has recently been sounded by the President of United States Steel Corporation, Clarence B. Randall, in his book: *A Creed for Free Enterprise* (New York, 1952).

selves to their business pursuits and rationalizing their conduct as best they could. As a result of such rationalizing, the Gospel of Wealth gave way to the Gospel of Production – of "more and more for less and less" – which was followed, in turn, by the Gospels of Distribution and Service, as the climate of public opinion changed; until today, in the Gospel of Distributive Justice, there is contained the growing conception of business as an institution aimed at achieving a just and working balance between the conflicting interests of labor, capital, and the general consumer.[13]

The Revisionist Approach

Encouraged by the astounding success of American business since the end of World War II, and stimulated by the growing challenge of other political and economic systems, certain writers such as Professors Allan Nevins and Louis M. Hacker are eager to revise the existing critical attitude toward American business. It is the view of these writers, and others, that the generally accepted accounts of business developments since the Civil War have treated the businessman most unfairly. According to Professor Nevins it is high time that we stopped apologizing "for America's devotion to material progress, its worship of bigness and its muscular economic power": [14]

> Without denying that many accomplishments of our swift industrialization were unhappy [he said], we can now assert that this historical attitude was erroneous. The nation grew none too fast. We can see today that all its wealth, all its strength, were needed to meet a succession of world crises — and we still dwell in a crisis era.
>
> Had we applied restrictions to keep our economy small, tame, and pure, we would have lost the first World War. Had the United States not possessed the mightiest oil industry, the greatest steel industry, the best technological schools and the most ingenious working force in the world, we would indubitably have lost the second World War.

A reassessment and revision of recent history also is called for because Nevins believes that every generation needs to find a reinterpretation of the past "to suit its own preconceptions, ideas, and outlook." In addition, our point of view will be influenced by the

[13] Theodore Levitt, *op. cit.*; Bertrand de Jouvenel, *The Ethics of Redistribution* (Cambridge, England, 1951), pp. 16–17; also, *Fortune*, Vol. 40, (Dec., 1949), 146–58.

[14] Excerpts from Professor Nevins' work come from one of two sources: either from a speech given before the Society of American Archivists, reported by the *New York Times*, Sept. 20, 1953, or from a debate between Allan Nevins and Matthew Josephson, *The Saturday Review*, Vol. 37, Nos. 1–13 (Feb. 6, 1954).

cataclysmic events of our time, as it will by the discovery of new historical materials and new tools of superior penetrative power. If we ask in what form the new account of recent history should be presented, it should, according to Nevins, be a "scientific appraisal" of all the facts – not an antithesis to the existing facts. We need to rewrite our history with "discrimination, balance, and a concern for scientific analysis of all the evidence." [15]

Few historians will find themselves at variance with the demand for a reassessment and a revision of the immediate past. No school of thought is the guardian of absolute truth. And in a very real sense, the call made for a more appreciative attitude toward our business society contains much good. Many business leaders were "the architects of material greatness," and their contribution should not be spurned or passed over unnoticed. Moreover, it is all too easy to exaggerate the evils accompanying capitalist economic progress and overlook the sacrifices occasioned by rapid economic development under alternative economic and political systems.

Yet there are certain aspects of the "revisionists'" thesis that must disturb many historians. We refer, as others have done before us, to the tendency of these writers to explain the past in the light of the present. The argument that the same "robber barons" should at least be given credit for the material strength which enabled us to emerge victorious from World War II is a telling one. But in so far as it is based on the reading of history backwards it is also a dangerous one. These writers give the impression – perhaps falsely – that they are more concerned with ends than with means. Too often, the ultimate justification for so much of the businessman's conduct, in their eyes, is economic efficiency. If efficiency is to be our criterion we must not grumble if we find ourselves unable to distinguish between the motivating force of a democratic and a communist society.[16] Basically, the division between Professors Nevins and Beard is not as great as might appear on the surface. Nor can one help feeling disturbed by the manner in which the conduct of certain business titans is excused on the ground that they merely reflected the tribal mores of their age. This is what cannibals do. Professors Nevins and Hacker have done well to give the businessmen the praise they deserve. But it is not enough to praise the "architects of greatness"; it is more important to examine the proc-

[15] *The Saturday Review*, Vol. 37, Nos. 1–13 (Feb. 6, 1954), 44–45.

[16] Reinhold Niebuhr, *The Irony of American History* (New York, 1952), p. 33; also, Sidney Hook, "Bread, Freedom, and Businessmen," *Fortune*, Vol. 44 (Sept., 1951), 174.

ess by which these architects have transformed the economy, and to determine whether the society they have built is inherently unstable and will prove to be their own undoing.[17]

The manner in which the "revisionists" have overlooked the deeper implications of the businessman's role in society is sufficiently disturbing; the contention that every generation needs "a reinterpretation to suit its own preconceptions, ideas, and outlook" is even more so. For if we allow our point of view to be determined by the circumstances and preoccupations of our own times we must expect the businessman to be seen alternatively either as a "robber baron" or as an "architect of greatness," as the mood of the times dictates. Worse still, we shall create in the minds of future generations a serious doubt concerning the value of a discipline that merely reflects the changes in general opinion. We can only conjecture what that opinion would be if the astounding success of American capitalism should by any mischance change to failure.

The basic question of this discussion is whether we can be as objective and scientific as the "revisionists" would wish us to be. Perhaps it is not too much of an exaggeration to say that the essential difference between those who have portrayed the businessman as a "robber baron" and those who have portrayed him as an "architect of material greatness" is the general preconceptions with which these writers set out. Of course, it will be argued that whereas writers like Beard chose their facts to fit their ideas, the "revisionists" have subordinated their ideas to the ascertainment of all the facts. The implication of this is that those who criticized business were biased, whereas those who praised it were not. If writing history to illustrate a preconceived theory is immoral, historians are likely to receive very short shrift on judgment day.

As historians, we have chosen not only to assume that bias can be banished from our midst,[18] we have chosen also to ignore the contributions of biased writers altogether. We have forgotten that

[17] Reinhold Niebuhr, *Reflections on the End of an Era* (New York, 1934), pp. 63–74.

[18] For which, of course, there are plenty of precedents. Take, for instance, Brooks Adams when offering a second edition of *The Law of Civilization and Decay* in 1896: ". . . I take the opportunity to say emphatically that such value as the essay may have lies in its freedom from any preconceived bias. All theories contained in the book, whether religious or economic, are the effect, and not the cause, of the way in which the facts unfolded themselves. I have been passive. . . ." See Gaetano Salvemini, *Historian and Scientist* (Cambridge, 1939), p. 15. Also, Morris R. Cohen, *The Meaning of Human History* (La Salle, 1947), and George M. Trevelyan, *An Autobiography and Other Essays* (London, 1949), pp. 68–82.

history would be a poorer thing without the contributions of many distinguished scholars who, in their own day, and this, were and are regarded as biased witnesses; as modern art would be a poorer thing without the emotional intensity of its outstanding precursor: Tintoretto. How can the historian, as artist, we may ask, ever convey his message without emotional intensity, aestheticism, and personal idiosyncrasy? Whatever our "scientific" pretensions might prove to be we shall never manage to measure and weigh human nature except in terms of full humanity. We need to consider the statement that "the individual motives of a writer are altogether irrelevant in determining the logical force of his argument." [19]

The Moral Conversionists

One of the less satisfactory aspects of the earlier critical accounts of business development is that they were largely negative. They sought to express the abuses of a business civilization rather than to understand these abuses and offer remedial measures. A more positive approach is that expounded by the liberal writer Arthur M. Schlesinger, Jr.[20] To Schlesinger, and those who agree with him, only the Andrew Jacksons of yesterday and today can prevent the businessman, "moved typically by personal and class, rarely by public considerations," from exasperating the rest of society to revolt and thus destroying its very foundations. Only the eternal vigilance of the liberals can ensure the political and economic freedom of the many against the power of "the entrenched conservatism of the commercially dominant few." Only thus can the corruptive evils of concentrated economic power be held in check.

Doubtless, there are many attractive features about this theory. It gives vision and meaning to many historical episodes hitherto isolated and unintelligible. No one denies either the need for eternal vigilance to safeguard our freedom or the corruptive influence of concentrated economic power. Yet plausible as this thesis is — that the businessman has had to be rescued from himself by the liberal forces of society — it is hardly convincing. For it portrays society as being much more sharply divided between the business and the nonbusiness interests than actually was the case; it reflects a wholly unreasonable obsession against business interests and it ascribes to economic power the failings that Kant and others have placed more properly in human nature. The corruptive influence

[19] Morris R. Cohen and Ernest Nagel, *An Introduction to Logic and Scientific Method* (New York, 1934), p. 380.

[20] Arthur M. Schlesinger, Jr., *The Age of Jackson* (Boston, 1945).

of economic power, moreover, is only one of the malevolent forces against which any society must guard.

The least desirable aspect of the Schlesinger thesis is its vagueness. Liberalism has undergone fundamental changes in its long journey from the laissez faire of the eighteenth century to the state paternalism of today. And one cannot help thinking that Schlesinger's account, in overlooking the romanticism of the businessman, for instance, tends to oversimplify what are, after all, complex and profound forces affecting the organic life of society.

A much more penetrative analysis of our business civilization can be found in the writings of such scholars as Christopher Dawson, Karl Mannheim, Reinhold Niebuhr, R. H. Tawney, and Arnold Toynbee. If there is one lesson more important than any other that can be learned from the works of these men it is that society can be understood only in its totality. They have emphasized that the success of economic institutions eventually depends on the nature of the whole culture and not, as we are too often inclined to believe, on the nature of the economic institutions alone. They have shown that of all the elements of culture which shape economic institutions, religious practices play an important role. The force of Adam Smith's philosophy in harnessing creative self-interest is not denied by these writers. What is denied is that the concept of widespread gain, which marks a business civilization, can eventually bind a community together. In their opinion the rationalistic assumptions which permeated the philosophy of the businessman, and which sprang from the social thought of the seventeenth and eighteenth centuries with its emphasis upon a natural order, are no longer applicable to the contemporary scene. In fact, as Christopher Dawson has remarked, the tendency of the classical economists, such as Ricardo, to conceive economic laws on the analogy of the mechanical laws of physical science has resulted in the exclusion of moral and political factors and has prepared the way for a materialistic interpretation of history.[21] These men are at one with Edmund Burke in emphasizing one of the great lessons of history that society is an organism, not a mechanism; and that the life of a society which denies this truth shall be fleeting.

One cannot doubt that these writers have shed considerable light on the problems that beset our society. To understand the questions they have posed is to appreciate much of the anti-business bias of the past as well as the present. They are unquestionably right in stressing that the measuring rod of a civilization is not, as

[21] Dawson, *op. cit.*, p. 221.

some of the "revisionists" would have us believe, productive capacity or business efficiency. They echo the question asked by Adam Smith in his *Theory of Moral Sentiments*: "For to what purpose is all the toil and bustle of this world?"[22] We do well to ponder their reply that whether our civilization shall flourish or perish will not be determined by its productive capacity but by the performance of the entire culture.[23]

Where these writers cause disquiet in the minds of many people is in their suggestion that a business civilization might escape its doom by moral conversion. In the opinion of some, this moral conversion is to be achieved by a return to the faith of our fathers. In the opinion of others, such as Arnold Toynbee, survival of our civilization depends on the discovery of a new synthetic religion. I cannot pretend to challenge this suggestion, regarding the need for moral conversion, in an article of this kind. I will merely say that the claim made for the moral element to be able to cure the ills of our society is a doubtful one. Elements other than the Christian ethic are needed. It is as easy for a good cause to be defeated by ignorance of the fundamental forces at work as by positive forces of evil. On these matters we need to ask with the late Lord Stamp whether our business civilization has "no promise of a purer form, and no developing germ of unselfish purpose that shall make it the moral equal of the eras that preceded it."[24] To underestimate the capacity of a democratic system to correct its excesses was the error committed both by Marx and Veblen. Tawney has remarked[25] that feudalism, too, had its predatory stage of development. And it is one of the lessons taught us by Charles Wilson in his recent work on *The History of Unilever* that, as professional managers assume the responsibility of business leadership, the criteria by which policies are shaped and judged are steadily altered to suit the social climate of their day.[26]

[22] Adam Smith, *The Theory of Moral Sentiments* (New ed.; London, 1892), p. 70.

[23] As one of Britain's pioneering economic historians put it: "A great nation is not a mere machine for producing the greatest amount of wealth with the greatest amount of speed, it is an organism which cannot be healthy unless the conditions of distribution are satisfactory as well as those of production." William Cunningham, *The Growth of English Industry and Commerce* (2d ed., 2 Vols.; Cambridge, England, 1890–92), p. 3.

[24] Josiah Stamp, *The Christian Ethic as an Economic Factor* (London, 1926), p. 88.

[25] R. H. Tawney, "A History of Capitalism," *Economic History Review*, I–II (1948–50), Ser. 2, 307–16.

[26] Charles Wilson, *The History of Unilever: A Study in Economic Growth and Social Change*, II (London, 1954), 392.

That part of history which must be of the greatest interest to readers of this *Review* is business history. Differing essentially from the muckraking accounts of the businessman's past, as well as from the more conservative and apologetic accounts of the "revisionists," business history seeks neither to attack nor to defend the business community, but rather to provide – systematically and dispassionately – the empirical data upon which a better judgment of the businessman's role in the past can be based. And unlike Niebuhr, Toynbee, and the other social thinkers mentioned above, most business historians prefer to avoid ethical and moral questions altogether – despite the fact that all interpretations of history which profess to exclude ethics and human evaluations merely sanction the use of uncritical ethical judgments and false premises.

This relatively young movement (founded at Harvard in the mid-twenties to study the administration and organization of business in the past), was, in part, a reaction to the determinist philosophy reflected in the teaching of the Classical Economists. It also expressed the dissatisfaction felt by many historians against the facile overgeneralizations of the economists. Characteristically American in its belief in facts and figures, and in the value of scientific data, it reflected the growing acceptance of scientific methods in the social sciences, as well as a growing awareness of the implications of a business civilization. Indeed, it would have been strange in an era of commerce if such a discipline had not appeared, particularly in the United States. And under the able leadership of such scholars as Donham, Gras, Larson, and others,[27] the study of business history has added a new dimension to our historical knowledge. By a careful evaluation of private business records – hitherto all too often ignored or thought of by most historians as of little consequence – it also has brought together some of the minutiae upon which any future general synthesis of the changing phases of business civilization must necessarily depend.

Whether such a synthesis is possible without the assistance of a general theory as a method of analysis is one of the most important questions facing business historians today. While it cannot be denied that the facts of business life have been absent from many past accounts (and business development all too often interpreted within a general theoretical framework, irrespective of what the evi-

[27] Henrietta Larson, "Business History: Retrospect and Prospect," *Bulletin of the Business Historical Society*, XXI (Dec., 1947), esp. 186–92.

dence has demanded), the present reliance on discernible and knowable "Capsules" and "Ground Rules" for the study of business history is an equally unsatisfactory procedure. We need to remember the assistance which many of us working in this field have received from a general theory of economics. Perhaps some business historians have swallowed too much of the theory and too many of the generalizations of the Classical Economists; but it cannot be denied that the more recent general theory of the firm, for instance, and the concept of the entrepreneur have helped us on our way. We need to ask ourselves, also, whether a method based upon the purely empirical tradition of Hobbes and Locke is in fact going to explain anything more than purely superficial phenomena. "The blind gathering and intercorrelation of data [which] has led to selective emphasis [being placed] upon regions relatively accessible to observation, thus sacrificing relevance to convenience," and confounding practical accessibility with importance, is a practice not confined to the study of business history alone.[28] Certainly, the analysis of actual business decisions and individual business organizations will provide us with a much needed corrective to the misleading general accounts which have done violence to the story of business growth, but it can give us little help in perceiving the general situation. The fundamental question to ask is whether or not the amassing of business minutiae will help us to achieve a better understanding of the dynamics of historical change than we might have got by asking more important questions about the conditions accompanying each phase of the historic process. Much business minutiae can only make sense within a general theory or framework about which most business historians are deeply suspicious.

I do not seek to minimize the difficulties surrounding the employment of a general theory as a method of analysis of business history – some of which have helped to give rise to this suspicion. Could such a formal apparatus, to take but one example, possibly account for the strategic and uncertain issues of business life? Would the preconceived pattern and conceptual framework – instead of being a means by which we can seek truth – come to be regarded as the embodiment of truth and an end in itself? Shall we sacrifice the hard bedrock of facts for windy hypothesis, rigid dogma, or an utterly vague relativism? Might it not be better, it will be asked, in these circumstances, to content ourselves with the amassing

[28] Egon Brunswik, "The Conceptual Framework of Psychology," *International Encyclopedia of Unified Science*, Vol. 1, Part 2, p. 706.

and cataloging of facts concerning the atmosphere in which business history was made, and suspend judgment and interpretation until some future date? Or deny the need of interpretation altogether. But how can we do this without evading our responsibilities as historians? To suspend judgment is easier said than done. If the search for a constructive synthesis demands too much of us, the ascertaining of the bare facts – even assuming that this course of action is either desirable or possible – demands too little. We cannot hope to escape from the basic problems of general theory and methodology by turning our backs on them.

Moreover, what is generally forgotten in assessing the value of a theoretical framework is the use to which the framework is put. There is a great difference between writing business history to illustrate a preconceived theory, and writing business history with the aid of a particular conceptual framework within which the facts can be evaluated. The difference lies between the historian who knows the answers regarding business development before he approaches history, and has already fashioned his conceptual framework accordingly, and the historian who knows that answers exist and employs his theoretical framework to help him in his search. In this respect it is worth mentioning that the assistance rendered by our helpmates, the economists, in the past might have been greater if they had not too often failed to recognize that human motivations other than the economic lie at the center of the factors determining economic growth.[29]

Whatever the faults of the general theorists and the system builders (with their emphasis upon business as a collective act, and hence upon the calculableness of the businessman), we are not justified in swinging to the opposite extreme. Surely, the choice for business historians does not lie between the depersonalized, individualistic view of Adam Smith or the collectivist view of Karl Marx. Much of what these two writers had to say of their own times is essentially true. But it does not follow that the principles involved in their writings are necessarily valid for all time. Business historians cannot hope to throw light on the economic and social truths of the past unless they are able to devise a concept that takes account of the social as well as the individualistic characteristics of the businessman. Whatever theoretical and methodological foundations we shall provide, they will be of little use unless

[29] A problem now receiving increasing attention. See *Capital Formation and Economic Growth*, National Bureau of Economic Research (Princeton University Press, 1955).

they reflect the creative as well as the demoniac nature of man, and the environment in which he lives.

It really depends on what we want to achieve. If our aim is erudition – albeit, at times, wearisome and boring erudition – then the amassing of facts, and the description of endless business detail, is the method we should adopt. But even then, in the selection of facts, we have to exercize value judgments about which there is all too little agreement among business historians. If, on the other hand, our aim as historians is to deepen our understanding of historical change by casting light on causality, then the cataloging and measuring of facts as in the physical and biological sciences will certainly not meet our needs. Business records can never be the sole explanation of business development. And to think that they are is to treat certain human relations in complete abstraction from others with which, in real life, they are inseparable. At best it will give us a superficial view of the infinite complex of circumstances surrounding the businessman's role in economic development. The most important question that can be raised here is whether our haste to accumulate facts has led us to minimize, and in certain instances to disregard altogether, the influence of explicit beliefs and human evaluations.

The business historian's most important contribution will not be made by providing more *disjecta membra* of a corpus of knowledge. We are indebted to this school for trying to recapture the true atmosphere in which business history is made and the humdrum levels upon which, inevitably, most of our business life moves. But unless business history – and any general theory that tries to explain business behavior – can be broadened beyond the scope of the organization and administration of the individual business unit, unless, especially, it can take account of the interrelation of the business world, and of the business world and of society as a whole, unless it can plunge deeper and throw light on the fundamental nature of the businessman, its task will remain incomplete. And these things cannot possibly be achieved in a vacuum where there is neither a set of general principles nor a hierarchy of values.

Perhaps it is only by trying to achieve these wider aims that we shall find the general principles upon which we can build an effective theoretical framework. It is true that, at this stage, such a theory is not likely to obviate – though *it* might minimize – the problem of value judgments. But if the theory facilitates the task of interpretation and provides us with a more accurate pattern of business behavior, however partial and provisional, it will be worth

while. From what has already been said it can be seen that these aims are not likely to be achieved if the theory is restricted to a study of business mechanics. If any criticism can be made against the growing atomization of knowledge it can certainly be made against business historians who fail to realize that the principles which they are studying in isolation permeate society as a whole. The question that must be answered here is whether or not business history is, in fact, general history with particular emphasis upon business development.

The Search for a Constructive Synthesis

The earlier tendency among scholars to ignore the existence of the businessman altogether can only be regretted. The same is true of those writers who attempted to ascribe to the business community, as a particular section of society, characteristics that are universal. Our criticism of the "muckrakers" is not that they derided the businessmen of their own generation, but rather that their contribution was largely negative. It left us with no vision of better things. Likewise, while the "revisionists" have tempered and dispelled the cruder exaggerations of the "muckrakers'" work their determination to redeem the character of some of the "robber barons" has often blinded them to the existence of greater and deeper realities. Despite all their claims to "scientific objectivity" — their sincerity and fairness cannot be questioned — they share with the "muckrakers" an unfortunate indifference toward the more complex nature of the past. Indeed, one is tempted to ask at this point whether the very term "scientific objectivity," in history, is not, of itself, a logical absurdity. In any event, the fact that it is impossible to explain social phenomena without the use of value judgments and subjective terminology should make us cautious of any claims to definitiveness. As the late Lord Keynes himself discovered, it is quite possible in the social sciences to raise a claim totally and utterly unacceptable to another scholar's scale of values and his view of reality. I hope that I shall not be accused of obscurantism if I say that the persuasive power of the "muckrakers'" or the "revisionists'" work cannot be accounted for by a study of the factual data used by either group. So long as we think that the persuasive power of a writer's argument can be accounted for in this manner, just so long will an explanation of historical beliefs continue to elude us. We shall never fully understand the impact of either school without taking account of the more powerful forces

at work in society. I do not say this because it is my desire to drag business historians into the mainstream of philosophical thought or to substitute for factual data a naive relativism; I say it because I believe that to be able "to bear witness unto the truth" it is necessary that we recognize our limitations as well as our strength. Until we are prepared to cast the net wider it behooves us to remember the dangers in concentrating attention on isolated episodes, or sectors, in the development of our business civilization.

It is also to be regretted that while the writings of such scholars as Dawson, Mannheim, Niebuhr, Tawney, and Toynbee have made us aware of the deeper and wider implications of our study, they have tended to ignore the possibility of a "developing germ" that may enable our business civilization to endure. The wisdom and the bravery of these men is indisputable; their Christian premises provide a sufficient guard against apathy and a return to classical pessimism. Yet one cannot reflect upon their work for long without being reminded of T. S. Eliot's melancholy opinion that around us is "the immense panorama of futility and anarchy which is contemporary history." Is it possible that these writers (from whom so many of us draw our social philosophy as well as our history), have dwelt too much on the shortcomings of a commercial civilization and too little on its achievements? Possessed of a different view of objectivity, is it likely that they might have seen the relationship between economic progress and moral deterioration in a different light? Or the supposed conflict between men and machines? Or the ignoble or demoniac aim of gain or profit in business? At least the questions they have posed should encourage us to re-examine the orientation of our social thinking. There is still hope for us, I believe, provided we do not try to find convenient and final answers in the cultural unity of the past or surrender, in despair, to the gloomy predictions of the present. Especially is there hope if we can remember that behind the concept of the businessman, and the theories we devise to explain his behavior, is man and his search for a better society.

Perhaps the truths of the past will always escape us until we can formulate a constructive synthesis of the various views of the businessman in history; one that will correlate the economic, social, and political implications which deepening specialization has kept apart; that will strike the right balance between the objective and subjective forces at work; and will know where to draw the line of demarcation between the sciences and the humanities. We do not deny the formidable nature of such a task – especially if we

are to recognize the social as well as the individualistic function of the businessman – for the closer we approach the contemporary scene the greater the mass of material we must try to encompass. And the greater the canvas and the wider its scope, the more difficult the problems of synthesis and unity. Moreover, the required synthesis is likely to prove elusive unless there can be some common agreement regarding the aspects of business life and morality which shall be judged important – agreement which will depend not only on the ascertainment of facts, and the formulation of a theoretical framework, but also on our view of reality.

Whatever course of action we choose – and I doubt if there can be any more final solution in these matters than in human affairs generally – it must at least be evident to us that to indict or applaud the action of the businessman without first having determined clearly why we do so simply adds to our confusion. It is important, of course, that we should know, as far as it is given to any of us to know, what the businessman did. But in passing judgment – and consciously or unconsciously we shall do this – it is doubly important to have some common agreement as to what the businessman ought to have done. And such agreement must recognize the organic nature of society, of which the economic element is but one of many. To shout praise or blame will not take us very far. Indeed, much discussion by historians of the businessman in the past has been sterile simply because we have not always had a clear idea in what light the businessman's conduct should be judged. The point to be brought out here is that unless business historians realize that so many of the conflicting accounts of the businessman in the past have sprung from different value judgments and not from different facts they are headed for delusion.

It has not been the purpose of this article to pass judgment on the business historian, but rather to recapture a clear sense of what we are trying to do. And it is always easier to say what is wrong with past accounts than to give form and substance to a better one. Of one thing I am sure, we cannot accept productive capacity as the most important goal of our society.[30] Nor can we judge our forebears in that light. No satisfactory social order will be established that disregards the fact that man is directed to a variety of ends. If the end of our society is productive capacity then the

[30] Either we neglect to study the productive process or we attach to it a supreme value. Even as sensitive and experienced a businessman as David E. Lilienthal has not escaped the problem of false primacy in these matters. See his *Big Business: A New Era* (New York, 1953).

businessman (and the property he controls), will be fulfilling his function admirably by producing material wealth in ever greater amount. Indeed, many businessmen will think it is pertinent to ask whether they have, in their daily lives, very much time for anything else. If, however, the end we seek is one that will take account of the organic nature of society it will be necessary for us to evaluate the businessman's role in a new light – one that takes account of the changing functions of property, and of the businessman in a responsible and democratic society. It is the belief held here that the economic factor has not been the universally dominant factor in American history – any more than temporal economic success is its present unifying force.

Conclusion

In concluding this article I shall not attempt to reiterate what I have already said regarding the origins of the conflicting views and perspectives of the businessman in history. I hope that I have said enough to show why our views differ, and to indicate the general lines along which, together, we might seek a more credible version of the past, and thus help to illuminate the problems that beset us in the present. This more credible version can only be achieved – as I have tried to indicate – by moving away from some of the earlier concepts and principles of business history. We shall not make much progress, for instance, unless we can devise a framework more deeply aware of the moral – some would say emotional – as well as the intellectual difficulties of interpretation. A new general theory of business behavior will not be of the slightest use unless it can take account of the larger context of human experience. It is right and proper that business historians should dwell upon the concrete and the particular, that they should be ever scrupulous in accuracy of detail, but – unless we are to see business institutions as evolving within their own set pattern and from their own inner logic – we need to take a more comprehensive view of society of which business organization and administration is but one part. The problem is whether the empirical evidence of business history – some of which, of necessity, must continue to be drawn from within narrow analytic boundaries – and other disciplines can be incorporated into the theoretical structure required for a general theory of business growth and behavior. And we cannot begin to accumulate that evidence until we have some measure of agreement concerning the origins and stability of histor-

ical beliefs and value judgments. I hold no brief for insipid conformity but it is absurd to talk about a general theory unless we can have a measure of agreement concerning the handling of available data and the nature of the problems we are trying to solve. The difficulties in doing this are great – but so also is the opportunity for the business historian, especially in these days when the place and claim of business and economics in the nation's life are changing so rapidly. In any event, as I have tried to show throughout this article, we cannot rest where we are with empirical description. The challenge is present. It is for the business historian and others to respond. Living through one of the greatest periods of social change in history, our business civilization will either provide itself with the necessary knowledge and will to adjust itself successfully to the ever-changing scene or it will perish. The choice lies between gradual and peaceful change, or change that will come with violent force. And it is here, perhaps, in providing perspective, that the historian can make his limited contribution.

Yet even with the best of intentions – with all the vision and sympathy that the business historian can muster – as well as the most appropriate conceptual framework with which to interpret his material, the historian cannot hope to make the businessman clever for the next time.[31] He cannot do so because changing conditions will reduce the value of his forecasts to nought. But it is wrong, nevertheless, to say that history has nothing to offer the businessman. Such a conclusion could hardly be farther from the truth. History cannot make the businessman clever in his business decisions; but in providing perspective – in providing him with an imaginative understanding of the social origins and consequences of what he is doing – it offers the businessman wisdom. Not for the moment, or the decision, or the day, but in the totality of the businessman's life, and that of the society in which he lives.

[31] A thought expressed by the distinguished Swiss historian Jacob Burckhardt in his Welgeschichtliche Betrachungen, and quoted by Peter Geyl in his *Use and Abuse of History* (New Haven, 1955), p. 84.

By Howard R. DeLancy
THE OHIO OIL COMPANY

The Cole Motor Car Company[1]

J. J. Cole, of Indianapolis, was one of the small group of entrepreneurs who successfully passed from carriage manufacture to automobile assembly. His initial success in the new field derived from technical competence, style consciousness, and marketing ability. These three attributes were not, however, subsequently exercized with equal and consistent effectiveness, and Cole, the talented individualist, did not survive the era of integration and combination in the 1920's. His firm passed from the scene, not as a bankrupt but as a typical founder-dominated organization that seemingly spent its energies in surviving one major transition and was unwilling or unable to face up to another.

In an automobile factory in the city of Indianapolis, in the year 1920, preparations were being made for the 1921 model. There were no designers nor a multitude of technicians, no drawing boards, no dozens of designs and hundreds of details from which to choose; the only evidence of the new model rested in the corner of the factory. It was the unpainted body of a prior model and several barrels of molder's clay. Working with the clay, building a curve here, adding a sweeping line there, blending his knowledge of cars and people, two hands and one mind worked until a radically new effect was obtained. That effect was "The Touch of Tomorrow." The 1921 model was the Cole Eight, and the man working the clay was Joseph J. Cole, founder and president of the Cole Motor Car Company.[2]

[1] This article is abstracted from a dissertation of the same title written under the supervision of Professor L. L. Waters and submitted in 1955 as a partial requirement for the degree of Doctor of Business Administration, School of Business, Indiana University. It was also read as a paper at the Midwest Conference of Business Historians, University of Indiana, April 21–22, 1956.

[2] Since most of the information in this article was derived from internal records, no specific citations are given. The Cole family granted the author complete access to the remaining records of the Cole Motor Car Company. These records include the minutes of the meetings of directors and stockholders of the Gates-Osborne Carriage Company, the Cole Carriage Company, and the Cole Motor Car Company; the accounting statements of the Cole Motor Car Company from 1911 to 1925 as certified by Price, Waterhouse and Company; a limited correspondence file of J. J. Cole; advertising material and parts lists of the Motor Car Company; issues of the *Cole Bulletin*, a monthly magazine of

Joseph J. Cole, the man who was to become one of Indiana's leading automobile manufacturers, was born on March 23, 1869, on a farm near the small settlement of Waterloo, Indiana. As a youngster J. J. Cole disliked farming and upon graduating from high school at the age of 16 enrolled in the Richmond Business College, where he completed a one-year course. From there he embarked upon a career in the carriage and buggy industry, first being employed by the Parry Manufacturing Company of Indianapolis and later working for the Moon Brothers Carriage Company of St. Louis. During his tenure with these two firms, he gained experience in all phases of the carriage manufacturing industry. However, his greatest success came as a salesman, and because of the large sales commissions he was able to earn he had saved $25,000 by the time he was 35 years old. In November, 1904, at the age of 35, he purchased a one-half interest in the up-and-coming Gates-Osborne Carriage Company of Indianapolis.

The Gates-Osborne Carriage Company had been organized in Indianapolis in 1902 and the small carriage factory had prospered during the first two years of operation under the guidance of T. M. Osborne, president of the company. J. J. Cole became the company's second president in November, 1904, and in December of the following year the name of the company was changed to the Cole Carriage Company. Under Cole's leadership, the operations of the company were expanded. By 1907, 49 different models of carriages and driving wagons were being manufactured.

During a business slump in the latter part of 1907, J. J. Cole began to give serious thought to building an automobile. In this, of course, he was not unique; Studebaker, Durant-Dort, Overland, and Moon automobiles all were products of one-time carriage manufacturers. To assist him in developing a model that his carriage factory might assemble, Cole hired Charles S. Crawford, a graduate engineer.

The first Cole automobile was built in the barn of one of Mr. Cole's neighbors, the man being a good mechanic as well as a good neighbor. The first model was shown to the board of directors in October, 1908. It was a high-wheeled, solid-tire model designed in a functional manner to accommodate the driving conditions of the day. It was later described in the Cole catalog as being "par-

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the Cole Motor Car Company; and the Cole scrapbook, a collection of newspaper and magazine articles, many of which were not identifiable. In addition, the author employed many other newspaper and magazine articles, and interviewed and corresponded with a number of persons who had been associated with the company.

ticularly desirable in sections of the country where necessary to ford creeks in absence of a bridge."

The Automobile Department of the Cole Carriage Company assembled and sold 170 of the 14-horsepower automobiles in the next seven months. However, no sooner had the company started to assemble the solid-tire automobile than plans for the second model began to be formed.

The second model was completed in June, 1909, and the directors and all who saw it were so impressed that the automobile was given prime consideration from that day on. It was apparent that J. J. Cole possessed ability in body design – an ability that eventually led to the slogan, "There's a touch of tomorrow in all Cole does today."

This second model of the Cole automobile, known as the "Cole Flyer," had no resemblance to the solid-tire model. But things were happening to the automobile all over the country; it was the year that automobile production was to go over the 100,000 mark for the first time. Old Dobbin was to be replaced by the Horseless Carriage.

In the summer of 1909, while the rest of the industry was going all out to meet the demand for automobiles, the directors of the Cole Carriage Company were making plans for the production of the Cole Flyer. A livery stable was rented for assembly space, and the Cole Motor Car Company was incorporated in Indianapolis on June 22, 1909, as a subsidiary of the carriage company.

J. J. Cole soon discovered that operating an automobile company and a carriage company on a $75,000 capitalization was a large undertaking, especially when two separate manufacturing locations were maintained. As a result, the Motor Car Company got off to a slow start, producing only six cars during the month of September. At this point, however, still another party became interested in the Cole Flyer. This was Harvey S. Firestone, president of the Firestone Tire and Rubber Company. He supplied the funds necessary to step up assembly operations to 30 cars in October, 42 cars in November, and 33 cars in December. The loan was soon repaid.[3]

At this point, J. J. Cole was determined to pursue the automobile

[3] The amount of this loan is not known, but probably was not large since it was common practice at the time for an automobile assembler to manage his operations in such a way that he could put together and sell his automobiles in time to meet suppliers' requests for payment for the components that went into the machine. A reasonable estimate would be that the Firestone loan was between $5,000 and $10,000.

business as a full-time venture. Plans were made to divert the assets of the Carriage Company to the Motor Car Company. This transition took approximately seven months, during which time only 268 carriages were manufactured. It is of interest to note that this transition from the carriage to the automobile was timed ideally, for, as later figures disclosed, the year 1909 marked the turning point for the carriage industry. In each year thereafter, the value of the products produced by the carriage manufacturers declined – 1909 being the peak year for the industry.

The launching of a new automobile in the year 1910 was not the task that we know today. Many new makes were being introduced each year and the reputation of the older makes was not as well entrenched as one might expect. The public was still looking for a better automobile, and J. J. Cole was determined to let them know that the Cole Flyer was worthy of consideration.

The "Flyer" was built for "long, fast road journeys." It carried 25 gallons of gasoline and 10 gallons of oil. In addition to such features as an ash frame and a sheet steel body, the Flyer also boasted a four-cylinder, 30-horsepower Northway motor. It was one of the first, if not the first, to offer demountable rims as standard equipment. The Flyer weighed 1,900 pounds and sold for $1,500.

In 1910 the mechanical fitness of an automobile was the thing; the public was easily moved by feats of speed and endurance, and to this end the efforts of the Cole Motor Car Company were directed. The Cole Flyer lived up to its name on the race track. It became very popular as a stock racing car and was entered in a great many stock car races during the 1910 season.

The first race driver employed by the Cole factory was Bill Endicott. To his intimate friends he became known as "Farmer Bill"; to his many race fans he became known as "Wild Bill." In 1910 the name of Endicott and the Cole Flyer became synonymous. It all started on April 8, 1910, in Los Angeles, the scene of a ten-day racing session for stock cars of all classes.

On the first day of the race the fans were thrilled by the daring of "Wild Bill" as he brought the Cole Flyer in far ahead of the nearest contender to win the ten-mile race. And little wonder – he had set a new world's record for cars of the Cole's class when he had driven the Flyer around the small oval at an average speed of 66.3 miles per hour. On the second day of the meet, "Wild Bill" was the victor in the fifty-mile race, and on the last day of the meet, he broke his own world's record when he won the ten-mile dash with an average speed of 68.5 miles per hour. The same Cole Flyer,

piloted by "Wild Bill," took most of the honors at the stock car races in Atlanta, Georgia. However, the greatest triumph of all came at the Brighton Beach track in New York where the Cole team, headed by Endicott, brought the Cole Flyer through a 24-hour endurance contest. The Flyer was the only car selling for $1,500 that completed the 24-hour event, and the Flyer did it twice.

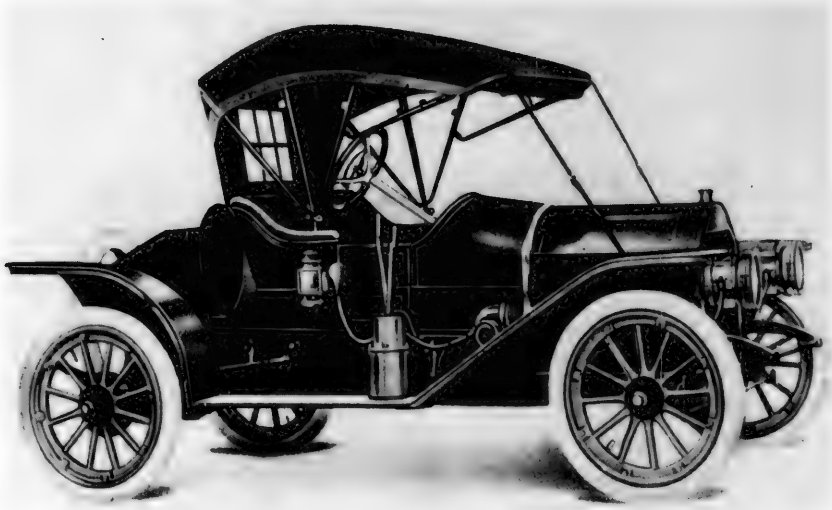
During the same season, W. A. Johnson demonstrated that the Flyer was just as economical as it was fast. The Cole that Johnson drove won the Economy Run in Chicago by averaging 23.6 miles per gallon, 2.26 miles per gallon better than the second-place Hudson.

The many records set by the Cole Flyer served as a wonderful store of ammunition for the Cole selling force. Nevertheless, J. J. Cole was not content to let the program of launching a new car fall entirely upon its track record. The program was implemented in many other ways. There was a Cole balloon, a gas bag of no small proportions; a Cole baseball team; Cole cigars; a Cole Boosters Club. J. J. Cole also employed H. C. Bradfield, an Associated Press reporter, to handle publicity for the new company. Bradfield's knowledge of the art of gathering news, combined with his personal contacts with newspapermen and celebrities, made him a natural candidate for the job. From the day that Cole hired him, the Cole Motor Car Company received much better than average treatment from the press.

The climax to this era of frenzied Cole boosting came when J. J. Cole decided to take to the air. The airplane was new, public interest in aviation was keen, and J. J. Cole was quick to grasp the opportunity. The opportunity was a $50,000 contest sponsored by the *New York American*, the prize being offered to the first man that could fly from coast to coast by October 10, 1911.

The Cole Motor Car Company purchased a Wright Biplane, fitted it with a Cole automobile engine, and obtained the services of Robert G. Fowler, a young Los Angeles aviator. The Cole Flyer, piloted by Fowler, started the coast-to-coast trip from San Francisco on September 12, 1911, but Fowler found it next to impossible to get over the mountains in his trek to the East. Some ten other contestants started the journey but only two of them, Fowler in the Cole Flyer and Galbraith Rogers in a plane sponsored by Armour and Company, persisted in their efforts to cross the continent. The prize went unclaimed on October 10, 1911, but sometime later, after rebuilding his plane four times enroute, Rogers became the first man to make the trip. Fowler and the Cole Flyer

J. J. Cole, Founder and President
of the Cole Motor Car Company
(1869–1925)



THE "COLE FLYER" FOR 1909
THE FIRST AUTO PRODUCED BY THE COLE MOTOR CAR COMPANY

Cole Solid Tire Automobile

Is not in any sense a converted buggy. It's a car for every conceivable purpose, for everybody. **THE COLE AUTOMOBILE** will go anywhere any other Automobile will, and many places they will not. Hill climbing, through sand and mud, you go where you want to and back—**NO TIRE TROUBLES. LITTLE REPAIRING—LOW COST OF UPKEEP.** Built in three models—two, three-four and four-five passenger. Single rumble, double rumble and toy tonneau. Ranging from **$725** to **$775**, with a guarantee behind every car.

No. 2—14-16 horse power, mechanical lubrication, shaft drive, 90-inch wheel base, Magneto.

No. 3—Jump spark ignition, planetary transmission; 36-inch front wheel, 38-inch rear. Equipped with three oil lamps, horn, tool outfit.

Models during show at 142 West Market Street, also at factory 952 West New York Street

COLE CARRIAGE CO.

952 West New York Street

THE FIRST AUTO AD OF THE COLE CARRIAGE COMPANY
FROM THE *Indianapolis Star*, MARCH 21, 1909

were second to complete the coast-to-coast trip, but only after spending better than four months at the task.

No one will ever know just how many people stood in the roads, on hills, at the landing fields, and read the papers, following the flights of Rogers and Fowler. The sponsoring companies received untold pages of publicity and Cole dealers had a heyday in every town Fowler visited, flew over, or came near. Caravans of Cole boosters were formed and often followed Fowler from city to city.

Launching the Cole automobile had been a program of great importance to the subsequent success of the Cole Motor Car Company. That program was a success from the very start.

The Cole Motor Car Company produced 112 cars in the last four months of 1909; 783 cars in the year 1910, and 1,316 cars in 1911. And Cole had produced them profitably, earning $227,000 in the two years and four months. What had started as a $75,000 venture was worth over a quarter of a million dollars in less than two and a half years.

The rented "livery stable" that had served to house the assembly facilities proved inadequate. The company purchased the rented property along with an adjacent piece of real estate and built a new $100,000 factory.

In 1911 the Cole Motor Car Company offered the public the first automobile to feature four doors as standard equipment. And in the same year, J. J. Cole instituted a method of "progressive assembly" — a system widely employed at the time and utilizing the same principle as today's assembly line; namely, sending the automobile along a definite path, adding various components in a logical sequence. The now familiar conveyor chain had its counterpart in the "dollies" of former years. The Cole automobile started as a frame and was "wheeled" along the assembly line on two wooden, eight-wheeled dollies.

The Cole Motor Car Company introduced two new models in 1912, the Colonial Coupe, a closed car that sold for $2,500 and the Cole Speedster, a racing car built for "the man who wants to get there first."

Every Speedster was tested on the Indianapolis Speedway and was guaranteed to go 70 miles per hour. All 1912 models were equipped with electric lights, an acetylene gas-operated self-starter, Bosch Dual ignition, and a Schebler carburetor. J. J. Cole was continually incorporating the newest features in the Cole automobile. It was assembled from the best components the industry had to offer. This was brought to light in 1913 when the Cole became the

"Standardized Car." In that year J. J. Cole launched a program to glorify the assembled automobile, as opposed to a manufactured automobile, the latter being defined by J. J. Cole as an automobile produced by a concern that manufactured all of the parts but specialized in none of them. As an assembled car, the Cole was advertised as having the best components that specialists were able to build. The components that made up the Cole were declared to be the standards by which all other similar parts in the industry were measured. Hence, the "Standardized Car."

An advertising program of national scope was undertaken to make known the merits of the Standardized Cole. The campaign was launched with a six-page spread in the *Saturday Evening Post* and followed up locally by the 400 Cole Dealers in 43 states, the District of Columbia, and Canada. In the same year, the Cole was acclaimed "The Choice of American Womanhood"; and "The Man's Car That Any Woman Can Drive." During the 1913 season the company spent nearly $200,000 on advertising; total selling expenses were much higher.

Production of the Cole had continued to increase, going from 1,316 automobiles in 1911 to 1,991 in 1912 and on to 3,547 in 1913. The company continued to prosper, with earnings for the two-year period in excess of $300,000. And once again it was necessary to expand the assembly and storage facilities, which the company did by building a second factory building adjacent to the main plant. With the completion of this addition, the factory had an annual capacity of 6,000 automobiles.

The outbreak of war in Europe in 1914 caused a temporary business recession in the United States because of the loss of export markets. However, it soon became apparent that the American economy was needed for the production of war materials. Foreign trade was limited only by the number of ocean-going vessels that could be pressed into service.

As the economy recovered from the initial impact of war, the automobile industry shared in the prosperous years that followed. The production of passenger cars increased from 461,500 in 1913 to 1,525,000 in 1916. In 1915 the production of trucks and buses became an important part of the auto industry. Also during this period, a marked trend toward the low-priced car was in evidence. In 1916, 71 per cent of all cars produced sold for less than $875.

During the latter part of 1914 Cole's chief engineer, Charles S. Crawford, spent the greatest part of his time at the Northway Motor and Manufacturing Company in Detroit, assisting in the de-

signing of a V-8 engine for the Cole automobile. Cadillac had introduced a V-8 in its 1914 model and, since J. J. Cole considered Cadillac his chief competitor, he felt he had to have a comparable engine.

The "Cole Eight" made its debut in January, 1915, becoming the second car to use such an engine. The Oakland automobile soon followed with a V-8 engine, and it is of interest to note that all three V-8's – Cadillac, Cole, and Oakland – were manufactured by Northway, a subsidiary of General Motors.

In 1915 Cole offered a "full line" of automobiles, producing four, six, and eight cylinder models. For 1915 Cole headlined the "Berline Limousine," a large limousine that seated six in the spacious tonneau. As the season progressed, however, and as the new engine became perfected, it was planned to upgrade all models so that the V-8 engine would be used exclusively.

Pioneering proved to be just as troublesome as it often is rewarding. The Cole Motor Car Company had its troubles with the V-8 engine. Two lubrication problems were encountered immediately. The rotation of the crankshaft threw too much oil into the right bank of cylinders, and the enclosed chain-driven fan drive threw oil out of the front of the engine. Among other troubles that were encountered, the aluminum pistons occasionally expanded to the point where they stuck, thus causing the engine to freeze. It took a full year of modifying to perfect the engine. In the meantime, however, the company had assembled about 1,500 automobiles using the V-8 engine. The Cole Motor Car Company replaced, at considerable cost to the company, many parts of the defective engines and in some cases the entire engine. Further improvements were made on the engine in the early part of 1916. In that year the V-8 engine was used on all models of the Cole automobile, which thenceforth was known as the "Cole Eight."

J. J. Cole was very conscious of the integration that was taking place in the automobile industry. More and more companies were manufacturing many of their own parts. Manufacturing offered the possibility of improving the quality of the automobile through control of the manufacturing facilities. It also offered the opportunity for reducing the cost of the automobile. Accounting records of the Cole Motor Car Company reveal that the cost to assemble a car was composed of 90 per cent material, 6 per cent labor, and 4 per cent factory burden. The key to the whole operation was volume. The economical conduct of a manufacturing operation clearly called for much larger volume and a great deal of new financing.

During this period the Cole Motor Car Company enjoyed a good reputation, and the possibilities of expansion were considered. Some thought was given to issuing preferred shares but this idea was soon abandoned because it was believed that the method, at best, would provide only a very limited amount of capital.

In the latter part of 1916 the company did offer 2,500 shares of common stock to the public. The offering was made at $120 per share, with the company receiving par, or $100 per share, for the 2,500 shares issued. This sale netted the corporation a quarter of a million dollars. A much larger amount was needed to undertake manufacturing operations on the desired scale. The $250,000 was used to purchase equipment needed in the assembly operation and to add to working capital.

On two different occasions W. C. Durant offered to purchase the Cole Motor Car Company by trading General Motors shares for those of the Cole Motor Car Company. From an examination of the correspondence it appears that the two parties were unable to agree upon the terms of the exchange. There was some reluctance on J. J. Cole's part because he was afraid that the Cole Motor Car Company might lose its identity or that the operation might be moved to Detroit.

Possibly the most promising method of achieving volume production at that time was through the process of merger. The Cole Motor Car Company soon became involved in a proposed ten-company combination. A rather elaborate plan was worked out whereby seven manufacturing companies were to be merged around three auto assemblers, the two principal assemblers being Cole and the Inter-State Motor Company of Muncie, Indiana. The new company was to be called the Cole-Interstate Motor Company.[4]

The proposed company was to have total assets of $10,000,000 and an annual capacity to manufacture 30,000 automobiles. The new company was to issue stock for the real estate, plant, equipment, and inventory of the ten companies. Working capital of $2,500,000 was to be raised through a public offering. It is believed that the ten companies reached an agreement among themselves, but as a group were unable to reach an agreement with the banking house of Redmond and Company concerning the terms of the proposed financing. Negotiations were dropped at this point and the Cole Motor Car Company continued as an automobile assembler.

[4] The other companies involved in the merger were Inter-State Motor Company of Muncie, Indiana; Warner Gear Company; Peru Auto Parts; Logansport Castings Company; Western Drop Forge; Hoosier Auto Parts; Ruetener Motor Company; Glascock Bros. Mfg. Company.

Production of the Cole automobile had decreased from 3,547 units in 1913 to 1,748 in 1914. As general business conditions rebounded from the 1914 slump, however, Cole's production increased, being 2,703 in 1915 and reaching a new high when 4,445 cars were produced in 1916. The company earned a total of $350,000 during the three-year period and paid cash dividends of almost $300,000. The company's earnings were somewhat below the industry's average in 1914 and 1915, reflecting the low volume of 1914 and the high cost of replacing defective parts and engines in the 1915 models.

In August of 1916, J. J. Cole took his first vacation since the company had been organized. He was gone for slightly more than one year, during which time A. F. Knobloch acted as general manager of the company. Knobloch had managed the Northway Motor Company's factory and was familiar with the Cole operation. He soon discovered that the policies of J. J. Cole were strongly entrenched and there to guide him, for as W. A. P. John, writing in the magazine *Motor*, said:

> Few cars reflect their builder to greater extent than does the Cole. J. J. Cole, despite his wealth, appears on the directorates of no banks or other corporations because his whole heart and soul and all his efforts are concerned in the Cole Motor Car Company. It is his only work. And it receives all his time. In body design, his touch is especially apparent, for the body design catches the public eye and pleases or displeases at a glance.
>
> In every department of the Cole factory you will find some personal touch of the Cole president. Every bit of incoming mail is read personally by him. All major purchases are made by him. His influence in sales and advertising is very powerful. All financing is his work.

The guiding doctrine of the Cole Motor Car Company was what J. J. Cole called "The Broad Idea." In his lexicon, a broad idea meant giving competitors full credit for what they had accomplished, a firm determination never to lose a chance whereby the general welfare of the automobile industry could be advanced, and the ability, at all times, to "keep business on a broad, humanitarian service basis." J. J. Cole's ethics were of the highest order. His will to serve the customer was evident in his operations.

Even though J. J. Cole was "on vacation" when the 1917 season opened, his touch in body design was present in the form of a new model, a model that incorporated a two-car-in-one feature and was called "The Cole-Springfield Toursedan." It was designed to give the motorist a closed car in winter and an open touring car in the summer. It had a permanent top and could be transformed to a touring car by storing all the windows and the upper sections of

the door frames in provided compartments. The Toursedan was comparable to the present day "hard-top convertible."

The year 1917 also saw America's entry into the war. The facilities of the Cole Motor Car Company were offered to the government for war production. However, since those facilities were not adapted to manufacturing operations, the assembly of automobiles continued. During the course of the war, some Cole automobiles were used by the American forces in France, the most prominent instance being the use of a Cole Toursedan by General Pershing.

J. J. Cole returned to the Cole factory in November of 1917. It was only two months before the New York Auto Show, and he immediately called his executives into conference. He said:

> Boys, I'm back on the biggest job I've ever undertaken. I'm back here to superintend the building of a new automobile. I'm back here after almost a year and half's absence to introduce to the world an absolute departure in motor car designing.
>
> I purposely divorced myself from everything that had to do with automobiles for a whole year. I forgot all the traditions. I took a fresh start. Then I looked for something new. As fast as I found it I incorporated it in my plan.
>
> I'm back now with a complete program.

And, as one executive later recalled:

> Bit by bit he unfolded the ideas he had conceived for building his new car. It sounded like a fairy romance. It was a glorious experience. So vividly did he picture it that we could fairly see that car grow into being there before us. And he said, "We are going to call it the Cole Aero-Eight. We'll have one ready for the New York Show."

True to his word, the Cole Aero-Eight was displayed at the New York Auto Show. It was credited with reflecting the most advanced ideas in automotive designing – "actual developments of the present great war." The aerotype body featured low beveled panels, high cowl, massive fenders, and "keen, sharp lines." The Cole V-8 engine for 1918 had "more than eighty actual horsepower." The engine retained the aluminum alloy pistons and added a new feature, the counterbalanced crankshaft.

During the period from 1917 through 1919 the operation of the Cole Motor Car Company progressed in an orderly fashion, production decreasing slightly in 1917 with the outbreak of war and, because of the material shortages caused by the war, decreasing still further in 1918, when only 2,439 automobiles were produced. With the signing of the Armistice, however, the company was in a very favorable position. The assembly operation had not been altered by the war and the company was in a position to produce at capacity

in the 1919 seller's market. A new high in production was reached in that year, when 6,255 automobiles were assembled. At that time Cole was the second largest producer of quality automobiles in the United States, being surpassed only by Cadillac, which produced 19,851 autos for the year.

The company prospered during the three-year period, earning almost $3,000,000 before taxes and $1,718,000 after taxes. On December 31, 1919, the company had total assets of $4,690,000 and the stockholders' equity was $2,256,000.

During the postwar boom, the various models of the Cole were selling from $3,250 to $4,450; and they were selling fast. In 1919 sales were limited only by the factory's producing capacity. Orders went unfilled. The swelling demand for automobiles led J. J. Cole to plan for a doubling of the plant's capacity, and a $1,000,000 contract was let for that purpose. When completed, the new facilities would permit the assembling of 12,000 automobiles per year.

The production schedule for the first six months of 1920 was prepared in July, 1919, and firm purchase contracts were made on the basis of an estimated production of 5,100 automobiles in the six-month period. As the very successful year of 1919 unfolded, the production schedule was increased to 1,000 cars per month for the entire year of 1920 and contracts to obtain the necessary parts to assemble 12,000 automobiles were made. As the boom gathered momentum in the early months of 1920, the production schedule was again increased and orders were placed on the basis of 15,000 automobiles being produced in 1920, the company planning on more than doubling its 1919 record of 6,255 automobiles.

The company had a record first quarter in 1920 when 2,606 automobiles were produced. In line with the expanded production, the advertising program of the Cole Motor Car Company and its 1,000 dealers was increased substantially. In spite of the very liberal expenditures for advertising on the part of the Cole Motor Car Company and a great many other American manufacturers, however, the American economy began to slow down. After reaching a peak in May, activity declined gradually for several months and then the decline gained momentum. By the end of the 1920 season the demand for high-priced cars had suffered severely, and the market had literally fallen out from under the Cole Aero-Eight. For the month of December, Cole produced 30 automobiles. Production for the year was 5,838 units, with 85 per cent of them being produced in the first six months.

At the year end Cole's balance sheet revealed that it was in a posi-

tion similar to that of many other firms at that time; namely, inventories of high-priced goods were enormous. In Cole's case the condition was acute because the inventory was composed of parts that were for the 1920 model.

The depression continued on into 1921 and J. J. Cole reduced prices substantially. In 1921 production for the industry was off 23 per cent while Cole's production had decreased 70 per cent, production being only 1,722 automobiles. The large inventory of parts was still on hand and the 1922 models were necessarily designed to use them.

Following the hectic year of 1921, the automobile industry recovered rapidly. In the course of recovering, however, many companies were left by the wayside. The sale of luxury cars was actually declining at a time when the low-priced market was expanding rapidly.

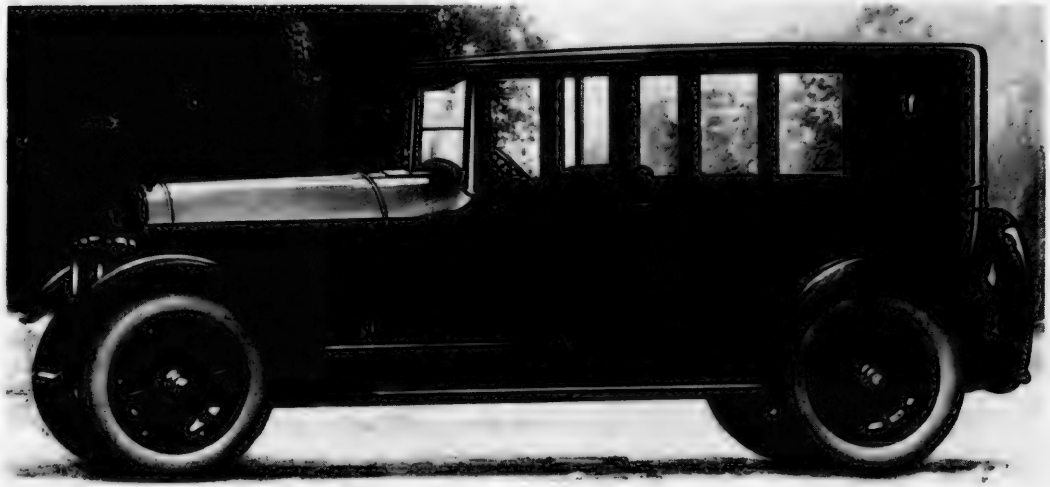
The Cole Motor Car Company's production did not increase in 1922, it declined to 1,522 cars in 1923 and was halted in October of 1924 after 632 automobiles had been produced.

During the last three years of operations the Cole Motor Car Company had incurred operating losses of $1,800,000 and had paid cash dividends of $200,000. The stockholders' equity on December 13, 1924, was approximately $1,250,000, a decrease of about $2,000,000 in three years. The price of the Cole V-8 had been reduced to the point where the factory selling price of the car was insufficient to cover the cost of material, labor, and factory overhead, leaving no margin whatsoever to cover the general administrative and selling expenses of the firm. In spite of these drastic price reductions, however, volume had not increased. J. J. Cole, who at all times during the company's existence had owned slightly more than 50 per cent of the Cole stock outstanding, was of the opinion that to continue would only endanger the remaining assets of the corporation. When the last automobile left the factory in October, 1924, plans were made to liquidate the company.

The Cole Motor Car Company was solvent on December 31, 1924, and remained so during a five-year liquidating period. All debts were paid in full and the stockholders realized $39.08 per share on the 20,000 shares of $100 par value stock outstanding. The real estate of the Cole Motor Car Company was sold at public auction and was purchased by the Cole family. Since that time, the family has organized Cole, Inc., and is presently engaged in the business of leasing and managing industrial real estate. The Cole plants are still an important segment of industrial activity in Indianapolis.

There are a number of reasons that could be given for the with-

Two Views of the Cole Factory
Top — Chassis Assembly
Bottom — Finishing the Chassis



Top — The Cole Factory

Bottom — The Cole Royal Limousine for 1925

drawal of the company from the automobile industry. The dealer organization had crumbled as a result of the postwar depression; the company was caught with an excessive inventory in 1920; and the V-8 engine had again given the company trouble in 1923. Not to be overlooked, however, was the general industry situation, for the plight of the Cole Motor Car Company was similar to that of many others during the early 1920's. Ten per cent of all automobile manufacturers failed in 1922; 15 per cent in 1923; and 21 per cent in 1924. The automobile industry was witnessing the rapid extermination of the small assemblers. The large, integrated companies were demonstrating their ability to mass produce in a highly economical manner. The low-priced automobile was being mass produced for a mass market, and just as the craftsman gave way to the machine, so did the small assembler give way to the large, integrated manufacturer. Progress is the essence of such an evolution.

J. J. Cole and the Cole Motor Car Company were a real part of this evolution. Cole's broad humanitarian outlook on business created a lasting effect on many of his associates and on the business community in general; he inaugurated many "firsts" in the automobile industry, and the Cole automobile had led the way in body design because J. J. Cole looked upon an automobile as a work of art. He said:

> There can be art in the making of a motor car as truly as there can be art in the making of a picture, or a poem, or a piece of music: the only difference being that, in the case of the motor car, your art must be practical.

The principles espoused by J. J. Cole have lived on and been carried far by the modern industry, though the tangible reminders of this meaningful chapter in automobile building history are today confined to a factory basement on East Washington Street in Indianapolis. Here may be seen six Cole automobiles in a perfect state of preservation – shining examples of a by-gone era when the Cole was the pride of the city and the second most numerous quality automobile produced in the United States.

By Eric L. Waugh
VISITING RESEARCH FELLOW
AT NORTHWESTERN UNIVERSITY

Railroads and the Changing Face of Britain, 1825-1901

This article goes beyond the usual easy generalization that the coming of the railroad brought profound economic and social changes. Here a broad panorama is revealed, but with specific features in sharp focus. These features include the conflicting impact of the railroads on local craftsmen and tradesmen; the initial stimulus to extreme concentration and then to dispersion of population; the influence upon industrial decentralization; the changing railroad attitude toward passenger traffic; the rise of dormitory suburbs and their conversion into integrated communities; the social implications of the new mode of conveyance; the significance in labor reform of the railroads as large employers. Students of American transportation will find much of interest in this British pattern and in the method by which it is set forth.

Just over a century ago Great Britain was still in the main a rural country. With the notable exception of London, it could be said that the cathedral spire, the market town, and the leafy village composed the typical landscape of the early 1840's. In those districts where industrial development was beginning to show itself, the smoking chimneys and grim slate roofs appeared as an unnatural excrescence on the rural scene. Engravings of the time depict shepherds tending their flocks in the fields on the outskirts of the largest cities and within sight of the factories.

By the end of the decade, however, this scene had undergone a radical transformation. The locomotive, following in the wake of a toiling army of navigators, rushed over the viaducts and through the tunnels and cuttings which they had made. Ancient barriers were laid low; market towns decayed and were overshadowed by obscure villages towering into dominance as railroad junctions. Bath, Shrewsbury, and Boston yielded to Rochdale, Middlesbrough, and Crewe.

"The monotony of bells and wheels and horses' feet" was what Mr. Carker heard in France when he was returning from Dijon after his failure with Edith Dombey; but on the English side of the Chan-

nel it was "the trembling and vibration" of the "fiery devil thundering along so smoothly tracked through the distant valley by a glare of light and lurid smoke and gone." [1] *Dombey and Son* appeared in 1848 and by the end of the year, when people were reading it, there were 5,127 miles of railroad open in the United Kingdom and over 2,000 more under construction by an army of 175,000 "navvies" and other workers.[2]

Despite the roaring speed and sulphurous fumes of the locomotive, travelers were soon won over to the railroad. The tolerable punctuality of the service was a new wonder to the early Victorians. "So rapid are the communications," writes a contemporary, "that it is frequently announced that this or that professor or artist will, on Monday evening, deliver a lecture or entertainment in Liverpool, on Tuesday in Manchester, on Wednesday in Preston . . . and so forth." [3] Coaches swiftly began to disappear from the turnpikes, and canals were little thought of, except by their anxious owners.

So by 1850 the British railroad network was rapidly assuming a modern look. The East and West Coast routes to Scotland were both in operation and a new line connected London and Doncaster, via Peterborough. Within the next decade, North and South Wales and Cornwall were reached. By mid-century the Britisher was becoming accustomed to having a railroad near his home.

I

When the railroads began to reach further afield into the rural communities of Britain in the 1840's, they brought with them influences which had conflicting results. It is a misconception to suppose that these results were confined to the farm laborer in the field. The pattern of rural life was changed much more by the impact of the railroads on commercial organization than by the migration of the tillers of the soil.

To the country trader the railroad gave new opportunities. Supplies were easily and quickly obtained from the manufacturer by rail. This meant that he was able to carry smaller stocks of a greater variety of articles. He could work with less capital and at the same time expect increased profits. The value of these advantages was enhanced by the development of easy personal communication be-

[1] Charles Dickens, *Dombey and Son*, chap. LV (written in 1846).

[2] J. H. Clapham, "Work and Wages," in *Early Victorian England*, I (Cambridge University Press, 1951), 20.

[3] D. Lardner, *Railway Economy* (London: Taylor, Walton and Maberly, 1850), p. 18.

tween the local trader and the wholesale merchant. Before the advent of the telephone in 1876, such communication depended upon three agencies whose success was directly attributable to the railroads: the penny post, the telegraph, and the modern traveling salesman.[4] Accordingly the number of retail shops increased and village stores appeared in the railroad age where they had never existed before. If a railroad passed near them, these stores could rely, by the end of the century, on a dependable daily delivery.[5]

But the early optimism of the small-town trader soon disappeared. He did not at first realize that the rail facilities which gave him these opportunities also benefited the large trader. The growth of the giant department store, which reached its customers by illustrated catalog and press advertisements, and then dispatched its goods by rail, tended towards the centralization of industry in the larger towns. The rural dry-goods store, with its limited range of patterns and styles, and the small food shop with its window display of sun-faded dummy cartons, were hit by the carriage-free delivery service of the city stores. The railroad network of the second half of the nineteenth century made it possible for a woman in a remote West Country town to shop by catalog with ease in Regent Street or Kensington, and to have her library book mailed to her door each week from Wigmore Street – all in London.

The railroad also vastly increased the circle of people who were able to shop personally in the large towns. As soon as the villager became accustomed to the trains, he began to use them to travel to the city store. Local fairs and markets tended to disappear. Writers at the end of the nineteenth century could still remember the long array of carriers' carts that used to stand before the village store on Saturdays, and the still more imposing array of gigs and dogcarts in the days when squire and farmer never missed a market.

But in the nineties, to use the words of a contemporary, "the

[4] The penny post was introduced by Sir Rowland Hill in 1840. The telegraph was first developed for railroad purposes: the earliest practical installation in Great Britain was that on the London and Blackwall Railway in 1838. Traveling salesmen increased greatly towards the end of the century from 35,478 in 1881, to 44,055 in 1891, and to 64,322 in 1901. Cf. *Census of England and Wales, 1901* (London: His Majesty's Stationery Office, 1904), General Report, p. 97; Appendix A, pp. 258–59.

[5] "We are all living from hand to mouth: the consumer, the retailer, the middleman and the manufacturer all expect . . . to telegraph or telephone for a thing today and get it delivered tomorrow . . . and you can get as a matter of fact pretty well everywhere, with the exception of extreme Scotland, your traffic that is sent away today delivered tomorrow." (*First Report of the Royal Commission on Canals, 1906* [London: His Majesty's Stationery Office, 1906], Minutes, p. 81, evidence of Sir Sam Fay.)

grassy streets told a different tale." It was "easier to go twenty miles by rail than to drive five."[6] The decreased road traffic also had its effect on the innkeeper. Lack of custom was forcing him out of business even before 1850; with the acceleration and extension of rail services, such traffic as there was moved faster. Even the salesman popped into the village with one train and out with the other. It would not pay him to stay all night.

One agency above all contributed to the new connection between the city and the country and that was the cheap one-day round trips which the railroad companies introduced. They were much patronized by the village laborer and were the occasion of much grumbling on the part of the local storekeepers. A contemporary observer of the rural scene records how for months at a time the laborer would seem to be penniless.[7] He never paid a bill that could be avoided. But when the railroad issued its handouts announcing a cheap excursion for one, two, or three days to town, he immediately became alert. This was the pleasure in which he thought he could get value for his money.

The new travel habit had a profound influence on village trade; but its educational aspect, if less apparent, was equally important. When the farm hands congregated in the local hostelry in the railroad age, their conversation was no longer confined to the poaching cases at the local courts and the outlook for oats and hay. Instead they discussed the relative merits of the cheap theaters and music halls of London. It is not surprising that they contrasted their quiet, circumscribed existence with its candle-lit evenings by the hearth, with the raucous excitement and superficial gaiety of the gas-lit streets in town.

Before he visited town at all, of course, the villager knew much about life there.[8] The railroads proved to be great disseminators of knowledge through the newspapers and books they carried, whether for the trade or the Royal Mail. The popular press catered

[6] P. A. Graham, *The Rural Exodus* (London: Methuen, 1892), p. 31.

[7] *Ibid.*, p. 76.

[8] "In nine cases out of ten I found that a London paper called the *Weekly Budget* was far and away the most popular with country folk," wrote Anderson Graham of his travels through Norfolk in the eighties; (*ibid.*, p. 90). The railroad newsstand soon made its appearance on station platforms: "At the railroad station we saw a small edition of *Twice Told Tales*," was a remark made by Nathaniel Hawthorne when he visited Chester in August, 1854. "And," he added, "the shilling edition of The Scarlet Letter and Seven Gables are at all the bookstalls." (Nathaniel Hawthorne, *Our Old Home* and *The English Notebooks*, I [Cambridge: Houghton Mifflin, 1902], 517. These were written during his four years in Great Britain as consul at Liverpool from 1853 to 1857 and were first published in 1870.)

to an urban readership and it was this picture of town life which the railroads dumped in heavy bundles on every station platform in the later decades of the century. It would be foolish to assume that the country newspaper reader confined his attention to the saucier tales and the garish advertisements of the cheaper department stores. In an age when the farmer's and artisan's leisure time was untouched by commercialized sport, the more serious affairs of the day occupied a larger part of their attention.

The marvelously rapid diffusion of parliamentary news, for example, was a great achievement in an age which had no radio and television networks piping up-to-the-minute news from all parts of the globe into the humblest home. It was also one of the best examples of what could be done with the aid of the railroads. Important debates in the House of Commons in London were frequently protracted – then as now – into the early hours of the morning. Relays of messengers carried the shorthand copy from the press gallery to the telegraph office. The tape was decoded in the newspaper office, the story reviewed and edited, set up in type and placed in the printing presses, out of which the newspapers came, cut and folded. They were immediately rushed to the waiting newspaper trains and distributed throughout the country.[9]

But, regardless of the time factor, without the trains a cheap and universally distributed newspaper press, such as had been organized by the end of the century, would have been impossible.[10] In this way the railroad broadened the intellectual compass of the little-educated worker. He was better fitted to exercise greater political power; and the isolation of the country from the town was gone forever.

In the nature of things the village trader was able to prosper long after his companion, the village manufacturer, had been compelled to fold. When transport was limited to road and canal, bulky goods were as far as possible manufactured at the place where they were to be used. Local brickmakers and timber merchants provided the

[9] The trains carrying the *Scotsman* and the *Leader* left Edinburgh at 4:00 a.m. and by breakfast time the parliamentary debates of the previous night were being discussed throughout Scotland. Similar facilities enabled the *Daily Telegraph* and the *Daily Mail* to go to press in London long after midnight and yet remain what, with the aid of regional editions, they are today — truly national dailies. Their answer to growing provincial competition was the 5:00 a.m. newspaper trains which left Paddington, Euston, and King's Cross for the West and North.

[10] Newspaper agents and newsstand attendants numbered 5,515 in 1881, 9,798 in 1891, and 16,074 in 1901. (*Census of 1901, General Report*, pp. 264–65.)

raw material for local requirements and craftsmen hafted the agricultural implements hammered on the village forge. The wheelwright provided carts and wagons.

But the advent of cheap rail transportation meant that the low overheads of urban mass production were made available to the rural communities as well. By 1881 the British railroad network had been in existence for about 30 years and the case of Huntingdon – a typical rural county – showed how village employment had been affected. Woodworkers fell from 73 in 1851 to 36 in 1881; shoemakers from 700 to 365; tailors from 394 to 230; and lacemakers from 1,002 to 389. Milliners and seamstresses were alone in showing an increase – from 741 to 830. These figures suggest that the hand-stitched boots and tailored suits produced in the villages were slowly yielding to the machine-made product of the towns. The local finisher of women's clothing was understandably in a position to provide stronger opposition to the forces of standardization.[11]

Among villages in the West Midlands trends were similar. Cooperative stores were thriving and increasing at a great rate; the village clubs were superseded by the great national insurance companies. Men who might migrate, it was pointed out, wanted to belong to a company which had branches throughout the country. Such an enterprise, dependent upon the regular personal call of the collector, was yet another phenomenon of the railroad age.[12]

With the increasing integration of the railway service in the 1840's and 1850's, many stagecoach services were withdrawn. But it must be added that, while the coaches were almost completely suppressed by the railroads, the old and the new forms of transport were to a limited extent complementary. As the railroads threw out increasing numbers of branch lines through the rural counties, coach services developed as feeders for the country railroad stations. This road traffic was definitely subordinate and tributary to the railroad service; but it helped to maintain some measure of equilibrium in em-

[11] W. Ogle, *The Alleged Depopulation of the Rural Districts of England* (in *Journal of the Royal Statistical Society*, LII, London: Edward Stanford, 1889), 226.

[12] The progress of the insurance business in the later decades of the century was phenomenal. Between 1891 and 1901 insurance employees increased by 79.4 per cent, and of the total employed in the latter year 61 per cent were agents. Agents were not separated from officials and clerks in the census classification until 1901. The male employees totaled 14,821 in 1881, 30,858 in 1891, and 55,013 in 1901 (of whom just under 34,000 were agents). (*Census of 1901, General Report*, p. 97; Appendix A, p. 258.) Cf. also: J. Ashby and B. King, *Statistics of Some Midland Villages* (in the *Economic Journal*, III, London: Macmillan, 1893), 196, 202.

ployment. By 1850, Huntingdonshire had the services of the new Great Northern line from London to Peterborough and Doncaster; it is not without significance that the county statistics for coachmen, cabmen, grooms, and horse dealers reveal that the maximum decennial increase in their number – 46 per cent – occurred between 1851 and 1861, after which time the figure remained fairly constant. No such adaptation was possible where canal traffic was concerned. The decline of the canals was sharp and, with a few noteworthy exceptions, final.

The foregoing evidence supports the suggestion that, where the rural communities were concerned, the railroads brought with them a series of conflicting results. The local craftsman and tradesman found themselves suddenly exposed to the chill wind of superior competitive forces. The railroad was responsible for this; but it also made it possible for these same villagers to look far afield to a wider market before they sold their labor. That they did so was evidenced at the end of the century. At that time Great Britain had a smaller percentage of her population engaged in agriculture than any other nation in the world.

II

While it would not be true to say that the railroad inaugurated the industrial era, it was the railroad, nevertheless, which made it possible for the industries already established to attain the proportions they did in the second half of the nineteenth century. For the creation of what is known as the factory system, with its teeming industrial populations gathered into busy urban centers, the railroads were certainly far more responsible than any other agency. As soon as the railroads brought cheap transport of raw materials and machinery, cheap movement of rural labor into the manufacturing districts on a large scale, and cheap distribution of mass-produced goods, the predominance of the factory as the unit of manufacture was assured.

The railroads made a large-scale factory system a practical proposition; they also rendered it socially feasible. The millions in the new urban communities required a distributing organization which only the railroads could provide. Thus, where towns had been limited in size before the railroad age just because the available supply facilities had a limited capacity, in the later decades of the century urban populations leapt ahead under the mutual stimulus of supply and demand. The steam engine relegated to obscurity the

old dependence on water power. Industry followed the source of raw material and the railroad connected the factory to the market. In this way sparsely populated regions were developed economically and socially on an amazing scale.

Prior to the census of 1851 the influx into the towns could be regarded primarily as the outcome of changes in the mode of production. Labor followed the market. After 1851 city populations became so great that they could no longer be even partially independent of an organized transport system. British railroads, of course, were rarely built to serve areas which did not already show nascent signs of economic development: to this extent the connection between rail and factory is a vicious circle. But the character of city population movement after 1851 leaves no room for doubt that the railroads were the controlling factor. The companies knew where the people wanted to live and they made those wishes possible of realization.

It is true that the railroads must bear a large part of the responsibility for the growth of urban congestion and ugly slum colonies; but they have also had a large share in helping the towns to spread out into healthy suburbs. The most interesting, if not the most typical, example of such a movement is that provided by the metropolis itself.

Just north of the square mile comprising the City of London (which is the ancient area around the Tower and St. Paul's Cathedral), the land is flat and marshy before rising to a spine of low hills. Here, in times gone by, the citizens strolled on summer evenings; here they came to fish. Here, in the 1680's, Mr. Sadler opened London's oldest theater, Sadler's Wells. That was most of three hundred years ago. But the linking up of central London with its outlying communities had hardly begun even in the 1840's. Kensington was a detached village reached by an ill-lit deserted country road from Knightsbridge. Islington, Battersea, and Chelsea were similarly isolated. The modern parks and residential estates of the future were open fields. Sportsmen were still shooting snipe in Pimlico in the 1820's. By mid-century the scene was changing. Describing the "village streets" and funfairs at Blackheath in 1855, Nathaniel Hawthorne notes how "the frequent railway trains . . . have made the vacant portions of Blackheath a playground and breathing space for Londoners, readily and very cheaply accessible." St. John's Wood was "a pretty suburb, inhabited by people of the middling class." [13]

[13] Hawthorne, *Our Old Home*, I, 264; II, 126, 332.

From the very beginning the railroad companies had to face strong opposition in their efforts to secure a right of way into the central area of London. A Royal Commission, "appointed to investigate the various projects for establishing railway termini within or in the immediate vicinity of the Metropolis," reported in 1846 that the advantages to passengers of the proposed extension of terminal facilities were "much exaggerated." In consequence of this verdict the railroads were restricted to the outskirts of London. The commissioners pointed out that the average distance traveled by a passenger arriving at Euston Square station was 64 miles; and therefore the saving of a mile or two was of little importance. Future freight connections were not anticipated within the limited area.[14]

This approach to the problem shows how, even in mid-century, the London railroads were regarded as agencies for the convenience of what was then considered long-distance traffic only. The phenomenal suburban business had not been thought of. But it was not long before the growth of the population and its needs made it clear that the exclusion order of 1846 could not be maintained. The commercial center of London lies north of the Thames; the same is true of the social center. It was obvious that the developing suburban services on the south side could not always be denied terminal facilities on the opposite bank, as they were under the ruling of 1846. When this was set aside, stations like Cannon Street, serving the ancient square mile of the City and its financial district, and Charing Cross (at the junction of the Strand with Trafalgar Square in the West End) were built in the 1860's. Liverpool Street station, on the northern rim of the City, was opened in 1874. The provision of these new facilities coincided with the beginning of the over-all decline in the population of the London central area, although in individual parishes the exodus had been going on for some time before. In this area, consisting of ten registration — or census — districts, dwelling houses were being replaced by business premises even in the 1830's.[15] Over the years the resident population came to

[14] *Report of the Royal Commission on Railway Termini in the Metropolis* (London: T. R. Harrison, 1846), pp. 5, 6.

[15] In the parish of All Hallows, London Wall, the decrease in population of 241 between 1831 and 1841 was attributed to "improvements and consequent demolition of a number of houses." In the same decade the number of dwelling houses in the parish of St. Gregory-by-St. Paul declined by 42 "owing, in many instances, to several houses having been thrown into one for warehouses and shops." In the City there were 3,934 inhabited houses and 6,254 uninhabited houses in 1901; but 5,813 — or all but 441 — of the latter were "in occupation"; that is, they were in use for business purposes. (*Census of Great Britain*, 1841 [London: H. M. S. O., 1843], Enumeration Abstract, Part

consist almost entirely of the keepers of the buildings. In this way the business district of the modern British city acquired its empty week-end aspect.

At the same time the migrating populations were creating another phenomenon of the railroad age – the dormitory suburb. For this migration only becomes significant when we relate it to its destination. At first the movement towards the more pleasant environment of the London outskirts was largely confined to the professional and commercial classes. For, while the central area emptied and the outskirts filled up, those densely populated districts in the poorer East End of London continued to increase their population.[16] But the scale of increase in the East End was declining sharply throughout the latter half of the century; this was especially so after 1891. The occupational records of the census reports show that these people – laborers, craftsmen, and transport workers, for example – were finding employment in the new suburbs. These areas were losing their dormitory aspect and were becoming integrated communities in their own right.

The interesting feature about this suburban growth is the regularity with which the rate of population increase rose according to the distance between the suburb and the central area. From 1861 onwards the highest rates of increase were in those districts farthest from the center.[17]

Towards the end of the century, the medium-sized cities were growing more quickly than London and other large centers. But these middle-sized places were, in reality, outlying towns fulfilling

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1, England and Wales, pp. 180–81; *Census of 1901: County of London*, p. 30.)

[16] Stepney, Southwark, Bermondsey, Poplar and Deptford were all increasing their populations in 1891 and several of them were still doing so in 1901. (*Census of 1901, General Report*, pp. 30, 31.)

[17] At the beginning of the century the North London district of Hampstead had a population of 4,343 or just under two persons per acre. Until mid-century the rise in population was not impressive. Thereafter, however, railroad facilities expedited its development — particularly those services provided by the North London and Metropolitan and Midland Railways. Hampstead represents the typical dormitory suburb of the time. It included the residential districts of Swiss Cottage, Primrose Hill, St. John's Wood and Chalk Farm, as well as part of Kilburn and Cricklewood. Between 1861 and 1871 its population rose by 59 per cent and in the next decade by 69 per cent. By 1901 the total was 81,942 where it had been 11,986 in 1851.

South of the Thames the boroughs of Fulham, Wandsworth, Lewisham, Greenwich, Woolwich and Hammersmith showed similar characteristics. (R. Price Williams, *The Population of London, 1801–81* [in *Journal of the Statistical Society*, XLVIII, London, 1885], 360, 374, 377, 378, 394–95; *Census of England and Wales, 1891* [London: H. M. S. O., 1893], II, 13; *Census of 1901, County of London*, pp. 28, 36, 37.)

the function of suburbs of their larger neighbors. Between 1881 and 1891 there were six cities in England which showed an increase of more than 50 per cent. The first four of these – Leyton (133 per cent), Willesden (121), Tottenham (95), and West Ham (58) – were suburbs of London itself.[18]

Other towns with large increases were King's Norton, Northfield, Handsworth and Smethwick (all near Birmingham) and Wallasey (on the River Mersey opposite Liverpool). Thus, a falling off in the rate of increase of a great town at this time, or even an actual decline in its population, cannot necessarily be taken as indicating a corresponding decline in prosperity.[19]

The dispersal of the new urban populations after 1861 was made possible because railroads were no longer confined to the great centers. The economy of living in these smaller towns proved attractive to manufacturers and they saved substantial sums on rent, insurance, and storage by moving their plants to the suburbs. The prospect of a cottage and garden attracted a high grade of employee. Connecting railroads ensured that the new factory was still within reach of the superior shipping facilities of the city. The leading modern examples of this process are provided by food-preparing corporations to whom the cleanliness of a suburban location is particularly attractive. Bourneville, near Birmingham, and Welwyn Garden City, in Hertfordshire near London, both developed in this manner.

The extent of this peripheral movement appeared in the Census of 1891, which showed that four counties in England and Wales had a higher percentage increase in the previous decade than either London or the principal industrial cities. These counties were Middlesex (50.93), Essex (37.82), Glamorgan (33.70), and Surrey (24.09). Middlesex, Essex, and Surrey are London suburban counties: all three had a larger rate of increase than the middle-sized cities (22.9) and much larger than that in London and the greatest provincial centers.[20] This order of progress shows how, by the end

[18] *Census of 1891, General Report*, pp. 12–13.

[19] Manchester provided the only example of a decreasing population in a large city during the decade 1871–81. This was "in consequence probably of the conversion of dwelling houses into warehouses and offices," said the census report. But dwelling houses cannot be converted into offices unless they are first vacated by the tenants. The sequel to the decline in Manchester was obviously provided by the adjoining town of Salford, which in the same decade recorded an increase in population of no less than 41.2 per cent. It had assumed the role of a Manchester suburb. (*Census of 1901, General Report*, pp. 27–29.)

[20] *Census of 1891, General Report*, p. 7.

of the century, the suburbs had left the city limits far behind.

The introduction of differential railroad rates acted as a further spur to the decentralization of industry. The Select Committee on Railways (Rates and Fares) which sat in 1881 was the first such inquiry to be so limited.[21] It was not until 1892 that a series of Railway (Rates and Charges) Order Confirmation Acts was passed to give effect to its proposals. The new rates came into force on January 1, 1893.

In effect the antiquated tolls for the use of the road were absorbed into comprehensive rates covering the toll, the haulage charge, and the use of the railroad companies' trucks. The new differential rates – involving a lower charge per mile for long-distance traffic and for large consignments – were incorporated. But cut rates for firms shipping by the trainload and even special truckload rates were not much encouraged. This absence of discrimination favored the numerous small businessmen who could not send even a truckload together and resented any move encouraging those who could.

In closing this phase of the topic it would be useful to look briefly at some of those census figures which record the birthplaces of the people. Grouping the five southeastern counties together – Surrey, Kent, Sussex, Hampshire, and Berkshire – comparison shows that in 1851 just over 4 per cent of the population had been born in London. In 1861 the figure was just under 23 per cent and in 1881 had risen to nearly 27 per cent.[22] Considering Kent alone, it is significant that the parts of the county recording the highest rates of increase at the end of the century were those nearest London.[23]

Occupational statistics add some color to the picture of migration because they indicate the groups who were leaving the cities in the greatest numbers. Making as accurate a comparison as possible be-

[21] It was appointed as a direct result of sustained demand for legislation which followed a general fall in prices. Hitherto the Government had been reluctant to touch railway rates at all. For geographical reasons — sea transport, for example, could compete with rail in serving many of the industrial areas — the rate structure had always been complex. In addition, even the biggest companies never accumulated profits spectacular enough to invite the criticism that they were abusing their local monopolies. (*Select Committee on Railway Amalgamations, 1872*: Report [London: H. M. S. O., 1872], p. xix.)

[22] *Census of Great Britain, 1851* (London: H. M. S. O., 1852), *Population Tables*, Vol. I, Section 2, *General Report*, p. cclxxxviii; *Census of England and Wales, 1861, Population Tables*, II (London: H. M. S. O., 1863), 146–47; *Census of England and Wales, 1881*, III (London: Eyre and Spottiswoode, 1883), 72. Further comparison in 1891 and 1901 is prevented by changes made in the boundaries of the registration districts.

[23] *Census of England and Wales, 1901: County of Kent* (London: H. M. S. O., 1902), Summary, p. vi.

tween the numbers of those in the professional and commercial classes domiciled in the City of London in 1841 and 1901, we find that 3,824 such people were living there in 1841, but only 1,461 in 1901 – despite the fact that in 1901 the City registration district was 50 per cent greater in area than 60 years before. By far the largest class of persons left in the City in 1901 was the servant class, including large numbers of caretakers, office cleaners, and hotel staffs. The group numbered 4,943.

The picture is very different if we consider a typical London suburb of the time, such as Wandsworth, south of the Thames. The largest groups enumerated here in 1901 were commercial and business clerks (6,814), merchants, agents and accountants (2,715), teachers (2,315), artists, musicians, and dramatists (1,944) and insurance brokers (1,836).[24] The five districts in London County which in 1901 showed the highest percentage of professional and commercial inhabitants were all suburbs, and Wandsworth was one of them.[25]

In this pattern of migration we see the genesis of that universal feature of modern urban life: the rush citywards in the morning and the rush homewards when the day's work is done. The habit began with the railroads and it depends, even today, on rail transportation for its continuance.

Within these new communities there was created an unprecedented demand for all kinds of home-produced foodstuffs. It only needed the railroads to link up the large centers of population with the districts producing an agricultural surplus, to put truck farming on the map as a profitable industry. The small cultivator, through the middleman or co-operative society, was able via the railroad to command higher prices than those prevailing locally. To the small truck farmer the railroads were an unqualified boon because he catered for a national market; it was not so with the large farmer who produced meat and wheat – commodities dealt with in an international market. As a result of these considerations, great changes took place in British agriculture in the last decade of the nineteenth century. The English farmer began to concentrate on growing those things in which he still held a sort of national mo-

[24] *Census of 1841, Occupations of the People*: Part I, England and Wales, p. 108; *Census of 1901, County of London*, pp. 96–97, 148–49.

[25] The other four were Hampstead (39.6 per cent), Stoke Newington (35.3), Kensington (33.6) and Lewisham (31.2). Wandsworth showed a percentage increase of 28.3. (T. A. Welton, *A Study of Some Portions of the Census of London for 1901* [in *Journal of the Royal Statistical Society*, LXV, London, 1902], 449.)

nopoly; where he would not in fact be liable to ruin because of bumper harvests in Saskatchewan or the Ukraine.

In consequence Britain began to assume the aspect of a huge dairy farm and market garden. The very drop in the price of meat and wheat meant that people had more money to spend on fruit and vegetables. The consumption of milk doubled in the period. Jam factories multiplied swiftly to absorb the surplus fruit crops. Thus while the number of workers on farms tends to fall towards the end of the century, the truck farming group shows a steady increase, amounting to 20.9 per cent between 1881 and 1891.[26] At the same time it should be noted that "the amount of ground . . . used as market gardens or as nursery grounds . . . in 1881 consisted of 53,083 acres; in 1891 it consisted of 87,711, an increase of no less than 65 per cent." [27]

The influence of the urban market can be clearly discerned in the occupational statistics of rural counties.[28] Truck farmers and seed and flower merchants in Kent, for example, increased from 3,449 in 1881 to 10,180 in 1891. In Hereford the figures were 449 and 1,282; in Cambridge, 383 and 1,873, and in Lincoln, 791 and 2,775. Nor was truck farming any longer restricted to those areas in the immediate vicinity of a lucrative market. Anderson Graham numbers "among the most interesting and suggestive" of his visits in 1891 that to the fruit farm colony at Methwold in Norfolk. Methwold, he said, was rather more than three miles from Stoke Ferry railway station and Stoke Ferry, 96 miles from Liverpool Street terminus in London. But the freight rates on the Great Eastern were reasonable enough to put the area within marketing distance of the metropolis.[29] The

[26] Between 1881 and 1891 the increases were: dealers in food and dairy produce, 46,668 to 67,087; fruit and vegetable dealers, 29,614 to 53,627; gardeners and flower and seed merchants, 148,285 to 216,165. At the same time agricultural workers decreased from 847,954 to 595,702. Over the 50 years 1851 to 1901, male farm workers over 10 years of age decreased by 42 per cent and the females by 91 per cent. (*Census of 1901, General Report*, pp. 104, 105, 259, 268.)

[27] *Census of 1891, General Report*, p. 44. In 1880 a commentator noted that "changes in the acreage of corn crops in all counties of England showed a uniform decrease without exception, while the percentage of the entire area returned as cultivated showed a universal increase." (P. G. Craigie, *On Ten Years' Statistics of British Agriculture*, 1870–79 [in *Journal of the Statistical Society*, XLIII, London, 1880], 308–11.

[28] *Census of 1881*, III, 58, 192, 241, 108, 296 respectively; *Census of 1891*, III, 50, 197, 242, 117, 303 respectively.

[29] Graham, *The Rural Exodus*, pp. 147–52; the Great Eastern Railroad was always noted for the freight services it provided in the agricultural districts of East Anglia. Cf. Henry Rider Haggard, *Rural England*, I (London: Longmans, 1902), 450.

food was needed in London and the company was merely satisfying a demand. But in so doing it gave a marked stimulus to rural employment.

III

All that desire to pass from Edinburgh to London, or any place on that road, let them repair to Mr. John Baillie's, at the Coach and Horses, at the head of Canongate, Edinboro', every other Saturday; or at the Black Swan in Holborn in London every other Monday; at both of which places they may be received in the stage coach which performs the whole journey in 13 days without any stoppages (if God permits), having 80 able horses to perform the whole journey; each passenger paying £4.10s.0d . . . . The coach sets off at 6 o'clock in the morning.

The handbill carrying this announcement was issued in 1712; but more than a century later, on the threshold of the railroad age, travel in Britain was not substantially different. London to Birmingham took 12 hours along the macadam-surfaced turnpike; to Liverpool another 11. That was the very fastest travel. Slowness was not the only drawback: the coaches were expensive, uncomfortable, and often dangerous. Two weeks' vacation at St. Leonard's in Sussex could be had in 1840 for the price of a one-way ticket from there to Tunbridge Wells, 30 miles off.[30] Travel in the lumbering, jolting, straw-strewn box of the coach had its romantic side of course, epitomized today in the Christmas greeting card. But no man rising early and going out into the cold, raw darkness of the small hours to meet the London Tantivy Mail at the posting inn, did so without due deliberation. In any case such travel was priced beyond the means of all but a small minority.

On the first railroads passengers remained very much a secondary consideration and yet just because railroad passenger fares, even in the early days, were considerably below those demanded for coach travel, the number of railroad passengers increased. A one-way coach ticket between Liverpool and Manchester cost 10s. inside and 5s. outside for a journey that occupied four hours. When the railroad opened on September 15, 1830, it was able to advertise a time of one and three-quarter hours for the same journey at a fare of 3s. 6d. or 5s. Despite the new speed and lower fares, opinion was by no means unanimous that the railroad was an unqualified boon to the traveler. At the outset the companies cared little for those passengers unable to afford first-class travel. One company, the Northeastern, for some time had no third-class (i.e., coach)

[30] A. B. Granville, *The Spas of England* (1841), I, xliv (quoted by J. A. R. Pimlott, *The Englishman's Holiday* [London: Faber, 1947], 75).

facilities at all and was finally impelled to provide them only because of the necessity for keeping people from walking along the permanent way or riding on coal trucks. The accommodation at first consisted of open boxes attached close to the engine. They were exposed to smoke and cinders as well as to wind and rain. Some contemporaries went so far as to suggest that the poor had lost by the railroads.

In 1846 *Punch*, always the self-appointed guardian of the social conscience, noted that the French Government had published a royal *ordonnance* fixing the regulations to be observed by the railroads there. "As it is a pity that these things should be better managed in France," said the satirist, "we publish a set of regulations for English railways." These included the following: [31]

> Cattle are to be separated from the passengers as much as possible, as it has been found from experiments, that men and oxen do not mix sociably together.
>
> No third class carriage is to contain more than a foot deep of water in wet weather; but, to prevent accidents, corks and swimming belts should always be kept in open carriages.

But, despite primitive beginnings, progress was rapid. In this same year — 1846 — *Punch* was the first to suggest railroad refreshment cars and underground railroads. Seven years earlier, signal boxes and Bradshaw's railroad timetable made their first appearance. The most notable innovation was the publication of arrival times. These had been shunned before on the ground that, in the words of an anonymous director, "they might make punctuality a kind of obligation." The average speed of the best trains was already 40 m.p.h. and 70 m.p.h. was attained with loads of 300 tons and more. The only factor which kept speeds down, indeed, was the lack of a powerful brake. Meanwhile, the long-distance coaches faded away.

Because of the nearness of all points to the sea, the importance of the summer resort excursion traffic on British railroads is unique. And it has been that way from the beginning. The 1851 census classified 212 cities and analyzed their rates of growth in the preceding half-century. It is surprising to find that London, the seaports, and even the manufacturing towns, were outstripped by the resort centers.[32] From the beginning the railroads were closely associated

[31] C. L. Graves, *Mr. Punch's History of Modern England*, I (4 vols.; London: Cassell, 1921–22), 67.

[32] Coast resorts increased by 314 per cent and manufacturing towns by 224 per cent. (*Census of 1851*, Vol. I, Part 1, Report, p. xlix.)

with the newly fashionable idea of an annual seaside vacation. But the earliest excursions were run between inland towns. When the Nottingham Mechanics' Institute wished to visit the Leicester Exhibition, they made out a list of those wishing to go and secured a special train at half-fare. It ran on the Midland Counties Railway on July 20, 1840. Thereafter, cheap trips were introduced on summer Sundays. When the Reverend W. Burns of Kilsyth read of a Sunday excursion from Newcastle to Carlisle, he placarded his Scottish parish with the announcement:

> A Reward for Sabbath Breaking
> People taken safely and swiftly to Hell next Lord's Day
> by the Carlisle Railway for 7s. 6d.

But the railroad excursion had come to stay. In 1841 two special trains ran to Derby for a triple execution – that of the three men who murdered Martha Goddard. On July 5 of the same year, a 33-year-old ex-gardener, Thomas Cook of Derby, chartered a train at his own risk to carry 570 of his fellow prohibition advocates from Leicester to a meeting in Loughborough. A brass band preceding the passengers to the station undoubtedly made them feel their importance as pioneers.

By 1846 Cook was running trips to Edinburgh on a commission basis. As the first excursion train entered the station, guns were fired and bands escorted the party to the town hall, where a welcoming committee was in attendance. The chairman's speech was later published under the significant title: "The Strangers' Visit to Edinburgh."

Of more direct social importance for the overworked industrial laborer were the "moonlight trips" Cook began to organize in 1856 during the summer months from the chief towns in the Midland Black Country to Scarborough and other coast resorts. Both journeys were made by night to allow a full day by the sea, and fares were very low. Cook foreshadowed the future of his famous firm when he reached the Continent of Europe for the first time in 1855 and the United States in 1866.[33] His efforts gave a strong stimulus to working class mobility and the habit of taking an annual vacation however short. By the time of the Great Exhibition in 1851 the excursion habit had been fully formed.

[33] Cook visited the United States in the winter of 1865–66, traveled 10,000 miles and made arrangements for trips over 4,000 miles of railroads at a rate of 2¢ a mile. The following summer 60 Britishers made the tour. Cf. W. F. Rae, *The Business of Travel* (London: Cook, 1891).

The railroads greatly increased the diversions and health of the people. Britain ceased to be a collection of isolated communities and attained to a greater degree of national life. Men became better acquainted with one another and provincial sympathies were broadened. Public events at home reached a vastly larger audience.

Times were changing, and nowhere is the change shown more impressively than in the paintings of the period. In Constable's painting of July, 1824, Brighton beach bears a deserted aspect. But by 1859 the new railroad clientele was well-established, as shown in Rossiter's celebrated period piece, *To Brighton and Back for Three-and-Six*. Five years later, McConnell's painting – *Punch and Judy Show on Ramsgate Sands* – depicts a scene where the Coney Island atmosphere is complete.[34]

But there were still considerable concessions to Victorian rectitude. Railroads might be all right during the week, but it was still thought mildly improper to travel on one on Sunday. A certain English bishop, indeed, acquired notoriety by being seen in a train on the Lord's Day. At the end of the century the North Wales resort of Llandudno still had its station gates locked on Sundays. As late as February, 1842, the *Morning Post* found it "worthy of remark that her Majesty never travels by railway." But the railroads soon proved themselves as regular passenger carriers and not merely as seasonal satisfiers of vacation traffic. In June of the same year, the *Railway Times* was able to report that Queen Victoria had made her first railroad trip. Thus was the seal of propriety set on the new means of transportation.

No feature of nineteenth-century travel had such an impact on the social scene as the first appearance of the railroad commuter. In 1856 Nathaniel Hawthorne was traveling back and forwards daily between his Southport home and the American consulate in Liverpool. Towards the end of the century the provision of commuters' trains had assumed sufficient importance to become the subject of Parliamentary legislation and enquiry by the London City government.

At first the short-run commuter business was disdained by some companies. Sir Richard Munn, chairman of the London and North-

[34] *Brighton Beach, July 22, 1824* (Oil sketch on paper by John Constable, in the Victoria and Albert Museum, London); *To Brighton and Back for Three-and-Six* (Oil painting by Charles Rossiter, 1859, in the Birmingham [England] Museum and Art Gallery); *Punch and Judy Show on Ramsgate Sands* (Colored engraving by W. McConnell, 1865, from *All About Ramsgate and Broadstairs*, reproduced in C. Marsden's *The English at the Seaside*, London: Collins, 1947).

western board, boasted that he was "not a suburban traffic man." Others were more co-operative, notably the London and Brighton and the Great Eastern.[35]

In 1883 the first of the new low-fare workmen's tickets came into being under Act of Parliament. In 1893 further legislation, in the form of the Cheap Trains (London) Bill, was introduced in the House of Commons. The importance of suburban train services was well underlined during the debate. Sir John Blundell Maple, speaking on the Second Reading, said that no one would build workmen's houses in the suburbs unless the rail fares into the city were already known. The Midland Railway had a poor workmen's service and consequently there was no housing development in that direction.

Mr. T. H. Bolton said that the cost of reaching the outer suburbs was at present prohibitive to workmen and unless the necessary facilities were afforded, they were only wasting time talking about the enormous advantage to the workman of having a better and more comfortable home outside the metropolis.

The President of the Board of Trade, Mr. Mundella, later reported the results of a conference attended by London County Council representatives and the railroad managers, which was held in June, 1893. Workmen's tickets were to be available for the return journey by any train after mid-day and the tickets were to be issued on a daily as well as on a weekly basis.[36]

Within the cities the congestion of road and rail traffic made it evident that the existing facilities needed to be supplemented by railroad lines directly serving the downtown areas. This was particularly true of London, where city workers needed to be set down in the locality of their offices. Neither surface nor elevated railroads

[35] When "Punctuality Parkes" became chairman of the latter company he cured one of its traditional vices — which it had inherited from its ancestor, the Eastern Counties — by drilling his staff into the belief that "time tables are not intended to be works of fiction, but of fact." In 1892 the London County Council's report on workmen's trains gave pride of place to the Great Eastern while criticizing the poor service of the London and Northwestern. North London workmen, it was reported, had to be awakened at 3:30 a.m. so that they could walk the half-dozen miles to the nearest station where there was a train to take them into the city.

[36] Parliamentary Debates, Fourth Series, IX (London: Eyre & Spottiswoode, 1893), 135, 145; XVIII, 1,692. In 1897–98 the London County Council collected statistics from 23 trade unions and societies as to how many of their members used the early workers' trains. On the London, Chatham and Dover Railway alone no fewer than 7,348 people were traveling daily between their homes in the suburban Sydenham-Wandsworth-Bromley-Blackheath area and London. The inward trains ran between 5:30 and 7:30 a.m. and the figures take no account of the later business office traffic. (London Statistics, 1897–98, VIII [London County Council, 1899], 350.)

across the center of London could be contemplated and the cost of further underground lines was thought to be prohibitive. (The original five-mile Metropolitan Underground between Paddington and Farringdon Street cost five times as much to build as a surface line of the same length.) A way was found out of the difficulty by the construction of deep-level iron tubes passing through the stratum of clay underlying the London basin. Inside the tunnels ran lines of electric railway. The invention of the Greathead Shield provided a comparatively easy and inexpensive means of constructing the tunnels.[37] Since the first line was opened in 1890, London has been provided with a network of tube railways whose busiest lines carry up to 40 trains an hour. They offer unsurpassed facilities for the interchange of traffic north, south, east, and west, not only between themselves, but in conjunction with the main-line surface lines. In such a way did nineteenth-century railroads solve the problem of gaining access to crowded downtown areas – a difficulty which in the twentieth century increasingly exercises the minds of airline operators.

IV

The manufacture of aircraft is the second biggest industry in the United States today: it employs three-quarters of a million workers. Half a century ago the same number of men and women were on the payroll of the British railroad companies. Because such a multitude was involved and because the railroads worked very much under the public gaze, the working conditions of their employees were discussed far beyond the confines of the station yards. These working conditions became a national issue in the latter half of the century.[38]

Even allowing for the harsh labor conditions of the time, it must be admitted that the picture was a dark one. In 1863 the engineer

[37] There is a radical difference between an "underground" or subway system (as used in New York and latterly in Chicago and Toronto) and the London "tubes." In the former the line is carried in brick or concrete-lined tunnels as near the surface as possible, often running for short distances in daylight and in most cases having stations practically on the surface. The steel-lined tubes are deep down, several escalators being necessary to reach them. The use of electricity for railroad traction dates back to Traill's electrification of the Giant's Causeway line in Northern Ireland in 1883. Siemens pioneered the idea in Berlin about the same time.

[38] Space precludes discussion of the social impact of the railroad construction gangs on rural Britain in the earlier years. The gangs were the subject of a Parliamentary investigation as early as 1846. Cf. *Report from the Select Committee on Railway Laborers* (London: House of Commons, 1846).

and fireman of a luggage train were fined 15s. each at Oxford city court for being found drunk on their locomotive. *Punch* admitted the moderation of the punishment but asked his readers to ponder the story told by the delinquents: "They declared in the presence of the Company's officers and without contradiction that their day was 14 hours and that, owing to extra pressure, they had only had 17 hours sleep the whole of last week . . . . On whom should fall the blame and punishment?" [39] A generation later conditions of work were still unbelievably harsh. But in 1890 a sequence of events was set in motion which first of all focused public attention on the grim lot of the railroadman and later inspired remedial legislation.

On Christmas Eve, 1890, 9,000 Scottish railroad workers went on strike demanding a ten-hour day and extra pay for overtime and Sunday work. The companies refused to yield and resorted to strike-breaking. A riot ensued near Glasgow: the military were called out and Motherwell station was wrecked. Not until six weeks later did the strike end – after it had cost the Caledonian and North British railroads £300,000. But the men were still without redress of their grievances.

Public reaction was widespread. *The Times* saw the outcome of the strike as proof that the companies were powerful enough to ignore the trade union officials. "We congratulate the railway companies on the important victory which they have won," ran the second editorial on February 2, 1891. But to this safely conservative sop was added the observation: "It is allowed on all hands that [the men employed by the North British] have real and substantial grievances." The article ended by urging the companies to reform.

Public opinion, indeed, while doubtful about the means, had little quarrel with the end the railroadmen were seeking. Later in the year a debate in the House of Commons dwelt on the grave social injustice and danger of overwork on the railroads. A Select Committee on Railway Servants (Hours of Labor) was appointed. A full-scale investigation ensued. The men, it was clear, had won a moral victory.

While the Committee was actually in session, public indignation was further aroused by the case of James Choules. Choules, a guard on the Midland and South Junction Railway, was crushed to death between the buffers of two trucks at Weyhill sidings in the small hours of a wild and stormy morning in October, 1891. At the inquest, evidence was given that Choules had been in a state of physical collapse before his death. He had been on duty precisely 22 hours

[39] Graves, *Mr. Punch's History*, II, 74.

and 18 minutes without interruption. The hours of the engineer and fireman involved in the accident were similar.

When the Committee issued its report, the evidence it contained showed that such overwork was prevalent. An accident on the Southwestern Railway in July, 1890, was attributed to the engineer being asleep on his locomotive. Both he and the fireman had been on duty 16½ hours. The mortality among shunters was described as "terrific." William Thomas Harding, a signalman on the Manchester, Sheffield and Lincolnshire Railway, worked a six-day week of 84 hours. His box controlled four lines and a road crossing. A hundred trains passed during the 12 hours he was on duty. He had no meal breaks and told the Committee that "to do our work properly we ought to be on our feet the 12 hours through."[40] *Punch* ran a cartoon above the caption, *Muddleby Junction* depicting a bleary-eyed pointsman vainly trying to sort out the identity of half-a-dozen approaching trains.[41]

Such exposure was not regarded kindly by the railroad directors and in August, 1891, those of the Cambrian Railways were rash enough to dismiss one of their employees who had testified before the Committee. But by this time events had gone too far for such reprisals to pass unnoticed. The offending directors were summoned to the House of Commons and publicly rebuked by the Speaker. The railroadman involved, John Hood, stationmaster at Montgomery in Wales, became a minor hero and a public subscription was organized for his benefit.

In its report the Committee stated that overwork on the railroads, far from being accidental or exceptional, was widespread and systematic. The result was the introduction and enactment of the Railway Servants' (Hours of Labor) Bill soon after the Liberal Government returned to office in July, 1892. Under its terms, the Board of Trade was empowered to act immediately if complaints of overwork were received. By current standards a day's work on the railroads at the end of the century was still a harsh assignment. But the decisive battle had been won. Public opinion had been enlisted. When Britain's last Liberal Government rode triumphantly to power in 1906, its mood of reforming zeal meant that organized labor was to receive a more generous hearing. On the railroads, as elsewhere, the nineteenth century was dead.

[40] *Report from the Select Committee on Railway Servants* (Hours of Labor), (London: H. M. S. O., 1891), Evidence, pp. 11, 16, 154.

[41] Graves, *Mr. Punch's History*, II, 75.

V

As the Victorian epoch passed, men of enquiring mind looked backward with appraising glance. The London Royal Statistical Society was impressed with the remarkable influence which had been exerted by the railroads. At the Society Meeting on November 20, 1900, it was pointed out that in the big towns the largest rates of population increases were in two such dissimilar places as Cardiff in South Wales and Brighton in Sussex. The export of coal — an unknown occupation a hundred years before — accounted for Cardiff's growth; while popular Brighton had become practically a London suburb.

The case of these two towns illustrates admirably the function of the railroad in a modern industrial society. The steam locomotive began by rendering possible the extreme concentration of population. Industry demanded it. But social considerations just as urgently required dispersal. Only the railroads could mitigate the evils of urban overpopulation and, by so doing, reconcile what seemed to be conflicting requirements.

While the sociologists and economists assessed the past, the railroadmen themselves looked forward. When the Railway Congress met in London in June, 1895, the attendance of delegates from many lands emphasized how the steam locomotive had spanned the far spaces of the globe. On their way into the meetings at the Imperial Institute, delegates smiled at an exhibition of the quaint engines and trucks used in the early days. But inside, while acknowledging that the steam engine was "the maker and guardian of modern life," they looked forward to new discoveries. It was even possible, they surmised, that science might discover a new motive power that would eclipse steam and electricity and make man's progress through the world not less graceful and easy, and even swifter, than the swallow's flight.

By Oliver Knight
MADISON, WISCONSIN

Oil—Canada's New Wealth

This article traces the birth and early growth of a major industry. Before Imperial Leduc No. 1 brought in the Edmonton field in 1947, Canadian oil producing operations had been sporadic. The Edmonton and subsequent discoveries in western Canada created an industrial giant overnight, providing historians and economists with a remarkable, documented, accessible case study of the process of industrial growth. Imperial Leduc No. 1 generated economic impulses that surged through a nation. The immediate effects were felt by the Canadian oil industry itself, which crystallized into a new pattern of integration. The domestic consumer of petroleum products was vitally affected, and his counter-reactions created new necessities. Canadian economic development in general was immediately and largely influenced; the flow of oil touched off a chain reaction in state and national fiscal affairs, in agriculture, in population trends, in education, in public expenditures, and in Dominion politics. Nor was the end here. The impulse for change swept across international boundaries, affecting monetary exchange and the competitive alignments of the world petroleum industry.

Canada experienced a new era of industrial development after World War II, partly filling the void left by the collapse of Germany and Japan. Advancing from fifth to third rank among the trading nations of the world, Canada demanded greater quantities of oil year by year to energize factories and propel a nation on wheels. Yet the nation virtually was without oil, supplying less than 10 per cent of its petroleum requirements from domestic sources in 1946.[1]

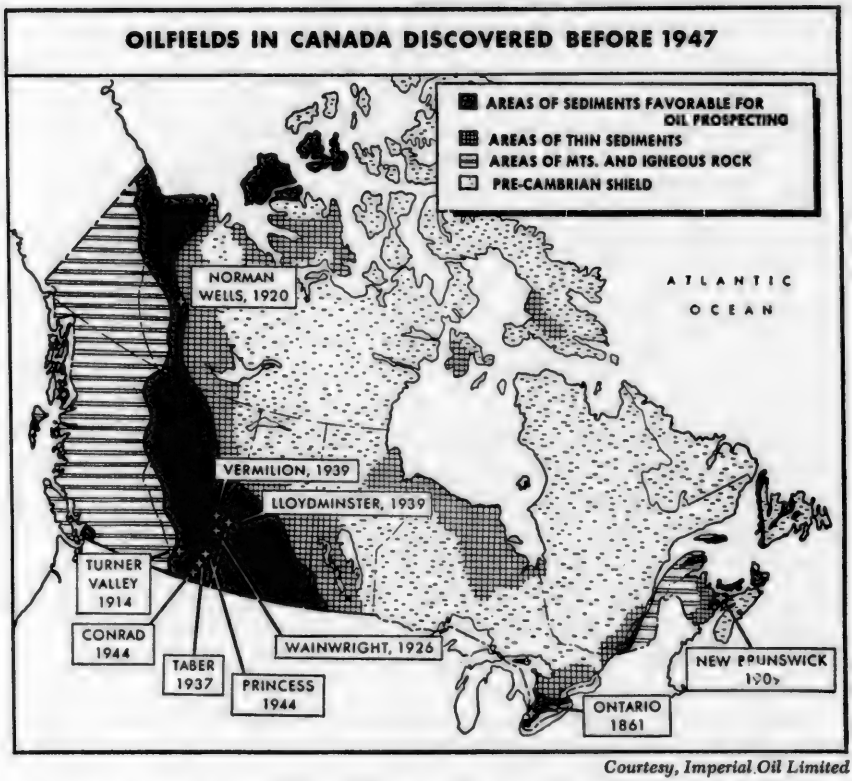
Approximately 90 per cent of Canada's oil supply came from other countries, much of it imported as crude and processed in Canadian refineries. The Maritimes were supplied by tanker from Venezuela. For Quebec, tankers brought oil from the Gulf Coast and South America to Portland, Maine, where it was trans-shipped through a 236-mile pipeline to Montreal, the Dominion's largest market. Ontario drew oil from Illinois, Kansas, Oklahoma, and Texas by pipeline and lake tanker. British Columbia was served by southern Cali-

[1] Dominion Bureau of Statistics, *The Canada Year Book, 1954* (Ottawa, 1954), 962; Imperial Oil Limited, *Reference Data, Canadian Oil Development* (Toronto, 1954), 9, hereafter cited as Imperial Oil *Reference Data*. Hereafter the Dominion Bureau of Statistics will be abbreviated to D. B. S.

fornia fields. Tank cars took crude and refined products to the prairie provinces.[2]

Only two areas were supplied by local crude, one near the Arctic Circle and another around Calgary. To be sure, Canada had other oil deposits, but the fields were few and production sparse. Ontario first produced oil in 1858, antedating the famous Drake Well in Pennsylvania. Through the years more oil was found in Ontario,

CHART I



Courtesy, Imperial Oil Limited

some in New Brunswick, some in North West Territories, and seven fields in Alberta and Saskatchewan. (Chart I.) But the western fields produced heavy oil, suitable for industrial fuels, whereas the prairies needed the light oils that yield gasoline and kerosene. Con-

[2] D. B. S., *Canadian Statistical Review* (Oct., 1948), p. iv; E. M. Holbrook, *Oil from the Earth*, reprinted from *Canadian Geographical Journal* and distributed by Imperial Oil Limited (4th ed.; Toronto, 1954), 18, 21.

sequently, of the 81,000,000 barrels [3] consumed in 1946, Canada produced only 7,600,000.[4]

The Era of Discovery

Within eight years the petroleum situation changed dramatically, beginning in 1947 when a wildcat well tapped an oil bonanza in western Canada. Designated as Imperial Leduc No. 1, the discovery well struck oil near Edmonton, touching off a multi-billion dollar oil boom beside which the earlier gold booms lost in grandeur. The windfall electrified the Canadian oil industry, which immediately undertook a simultaneous expansion program in each of its four component industries – production, refining, marketing, and transportation. The pyramiding development made petroleum the leading mineral of Canada, placing it ahead of nickel, copper, and gold by 1954.[5]

Alberta became second only to Texas as the area of the greatest geophysical activity in the world; the oil play spread to all four western provinces; Canadians built the longest crude oil trunk pipeline in the world, and planned a coast-to-coast natural gas pipeline that would rival the first transcontinental railway in its long-term significance; new refineries were built and old ones enlarged; petrochemical plants reared above the wheat fields; and western farmers bought more tractors, taking advantage of cheaper gasoline. Alberta, once the poor sister among the provinces, grew rich. Increasing industrialization broadened the base of prairie economy. More than a billion dollars of United States capital went into western Canada. By 1954 Canadian oil consumption doubled, yet Canada supplied almost half the demand from domestic sources, and

[3] When U. S. and Canadian statisticians say barrels, they mean different quantities. The Canadian barrel contains 35 Imperial gallons, against the U. S. barrel of 42 gallons. The Imperial gallon contains 160 fluid ounces; the U. S., 128 fluid ounces.

[4] W. O. Twaits, *Canadian Oil at the Eighth Milestone. An Address by W. O. Twaits, Vice-President and Director, Imperial Oil, to the American Institute of Mining and Metallurgical Engineers, Chicago, Illinois, February 15, 1955* (Toronto, 1955), 2; Holbrook, *Oil from the Earth*, 9; W. D. C. Mackenzie, *Summing Up* (Imperial Oil, Toronto, 1954?), 2; Province of Alberta, *Budget Speech of the Hon. Ernest C. Manning, Treasurer of the Province of Alberta, delivered on March 5th, 1948, in the Legislative Assembly of Alberta, on Moving the House into Committee of Supply* (Edmonton, 1948), 5; K. R. Wilson, *The Oil Bonanza*, Reprint No. 106 (from *Financial Post*, Nov. 24, 1951), Information Division, Department of External Affairs, Government of Canada (Ottawa, n. d.), 3. [Hereafter all budget speeches will be cited in this form: Province of Alberta, *Budget Speech, 1948*, p. 4.]

[5] Bank of Nova Scotia, "The Impact of Leduc," *Monthly Review* (Sept., 1954), p. 1.

even exported oil to the United States, the world's greatest producer. From a "have-not" nation, Canada became the sixth-ranking petroleum producer of the world. Canadian oil men were jokingly accused of using a new chronological division, B. L. and A. L. – Before Leduc and After Leduc.[6]

However, Imperial Leduc No. 1 was not merely a lucky strike in the sense that "Pop" Joiner struck it lucky when he opened the East Texas field with a borrowed rig. Rather, the well was part of a patient, long-range, expensive search by Imperial Oil Limited, an affiliate of Standard Oil Company (New Jersey). Known in the west since it started selling lamp oil and axle grease to farmers in 1881, Imperial undertook the long-range exploration program in 1936. By the time the Leduc well was spudded in, Imperial had drilled 133 dry holes in western Canada, spending $13,250,000 on exploration.[7]

When the Leduc drill bit had crunched a mile below the earth's surface, a drill-stem test brought up saturated cores, showing the presence of oil in a porous dolomite structure. Preparations to test the well attracted approximately 500 persons to the drill site, 16 miles south of Edmonton. There on February 13, 1947 – a bright, cold day – they watched while the drilling crew swabbed the well, a process similar to pumping.

At 4:00 p.m., the swab stemmed slowly out of the well and up into the steel derrick. To the 500 chilled watchers came a driller's shout: "Here she comes! She's coming!" A few moments later he yelled: "It's oil – oil!" The first flow was diverted to a pipe extending over the slush pit and flared; that is, the oil was set on fire, because the first flow contained mud and chemicals that would have contaminated storage tanks. A woman spectator exclaimed at the sight of the huge flame, and a company production official said: "Lady, we don't know whether this is a real oil well yet or not. If it blows a smoke ring, I'll say it may be good." Then came a puff from the flare pipe, and the odd sight of the oil fields occurred – a large smoke ring ascended skyward.[8]

The production official's guarded statement that "it may be good"

[6] Gordon M. Grant, *Now We've Got Oil Plenty — and a Market Challenge*, Reprint No. 175 (from *Financial Post*, Dec. 4, 1954), Information Division, Department of External Affairs, Government of Canada (Ottawa, n. d.), 1.

[7] J. R. White, *Prairie Progress* (Imperial Oil, Toronto, 1954), 1, 3; Mackenzie, *Summing Up*, 3; Grant, *Now We've Got Oil Plenty — and a Market Challenge*, 7; "Birth of an Oil Well," *Imperial Oil Review* (Imperial Oil Limited, Toronto, April, 1947), pp. 3–5.

[8] "Birth of an Oil Well," 3.

was typical of the cautious attitude Imperial displayed toward the discovery until additional wells could define the reservoir. Producing from 5029–66 feet, the well had an initial flow of 788 barrels daily. The first news from Imperial Leduc No. 1 was good enough to set off a scramble for drilling sites, inasmuch as 20 other companies were prospecting western Canada at that time. By the end of December, 1947, thirty-three wells were producing from the new Leduc field. They all brought up light oil (38–41° API) which refiners liked, for it produced the light products needed by western farmers, in contrast with the heavy oil of the earlier western fields. By early 1948 conservative estimates placed the potential recovery of the new Leduc field at more than 100,000,000 barrels.[9]

The boom was on, and oil men rushed into the world's newest major producing area. United States as well as Canadian, independent as well as major companies sounded and tested prehistoric formations beneath the earth's surface. The number of companies exploring and developing western Canadian oil resources varied between 200 and 300 between 1947 and 1954.[10] Following the classic pattern of oil development, independent operators exploited the initial phases of the oil play, and major U. S. companies moved in later. However, some major companies were involved from the beginning, such as Imperial and McColl-Frontenac, the latter a Canadian affiliate of the Texas Company. Standard Oil Company of Ohio represented seven United States companies in holding large leases in Saskatchewan. The venerable Hudson's Bay Company, associated with western Canada since 1690, had joined forces with Continental Oil Company, a United States concern, in 1926 in forming the Hudson's Bay Oil and Gas Company. By 1952 the production industry employed an average of 3,000 workmen per month, most of them Canadians who quickly learned a new business under the tutelage of specialists from older oil areas.[11]

Oil men mobilized more than a billion dollars in United States

[9] "Editorial," *Imperial Oil Review* (April, 1947), p. 1; Leigh S. McCaslin, Jr., "Western Canada," *Oil and Gas Journal* (Aug. 30, 1947), pp. 71–74; Province of Alberta, *Budget Speech, 1948*, pp. 5–6; "Birth of an Oil Well," 3.

[10] Directories of firms engaged in the petroleum production and refining industries may be found in the D. B. S. reports entitled *The Crude Petroleum and Natural Gas Industry* and *The Petroleum Products Industry*.

[11] Grant, *Now We've Got Oil Plenty*, 5–6; McCaslin, "Western Canada," 71, 74; *Recent Developments in the Canadian Oil Industry*, Reprint No. 90 (from *Monetary Times*, Dec., 1950), Information Division, Department of External Affairs, Government of Canada (Ottawa, n. d.), 12; D. B. S., *The Crude Petroleum and Natural Gas Industry, 1952* (Ottawa, 1954), H-7; Mackenzie, *Summing Up*, 6.

capital for Canadian development. An official Canadian estimate of international ownership showed that United States investment represented 52 per cent of the total in 1951, contrasted with 39 per cent in 1945. (Table 1.) The flow of capital across the border was used throughout the industry, from major companies to lease brokers. Between 1946 and 1954 a total of $2,115,000,000 was spent by Canadians and Americans in expansion. The figure involved $855,000,000 for facilities and $1,260,000,000 for exploration and development.[12]

The billion dollars spent on exploration within eight years reflects the pace and scope of the search for oil. (Table 2.) By 1954 exploration expenditures averaged a million dollars a day, contrasted with a million a month in 1946. Oil men probed the Canadian basin that is part of the central sedimentary area, extending from the Arctic Ocean to the Gulf of Mexico. The sedimentary area has yielded the oil storehouses of Texas and the Mid-Continent, and the Leduc well revealed a coral reef type structure similar to that which holds West Texas deposits. In spreading from Alberta to Saskatchewan, Manitoba, and British Columbia, exploration involved the leasing of land, sending out geophysical survey parties, and drilling exploratory wells.[13]

Leases reserved extensive acreages for exploration and eventual development. The land under exploration rose from 20,000,000 acres in 1946 to 185,000,000 at the end of 1954, approximately 290,000 square miles, as large as the United Kingdom and France combined. The industry also claimed that the monthly average increase in land under exploration, between 1947 and 1954, equaled in size a strip of land 4.5 miles wide, stretching the 600 miles from Edmonton to Winnipeg.[14]

The Crown, through the provincial governments, held most of the mineral rights, which were disposed of by auction or tender, producing large bonuses in addition to the usual 12.5 per cent royalty. Frequently operators needed two leases – one with the government and the other with the owner of surface rights. Alberta owned 93 per cent of the oil rights, but in Saskatchewan exploration extended by 1950 to more than 20,000,000 acres of freehold land which had been owned originally by railroads, the Hudson's Bay

[12] R. B. Toombs, Economics Branch, Department of Trade and Commerce, letter to author, May 9, 1955; Twaits, *Canadian Oil at the Eighth Milestone*, 4; Imperial Oil, *Reference Data*, 10.

[13] White, *Prairie Progress*, 13; Twaits, *Canadian Oil at the Eighth Milestone*, 3; Imperial Oil, *Reference Data*, 6.

[14] Mackenzie, *Summing Up*, 3; Grant, *Now We've Got Oil Plenty*, 6.

Company and homesteaders. In Manitoba landowners held most of the mineral rights.[15]

With the leaseholds secured, geophysical surveying parties took seismic equipment into the field where they set off man-made "earthquakes" to chart the under-surface structures. The maximum number of parties in the field rose from 11 in 1946 to 189 in 1952, the year of peak activity. During the ten years between 1945 and 1955 survey parties worked a total of 12,458 crew months. Two years after the Leduc discovery, Alberta was second only to Texas in world geophysical exploration activity, with 300 companies participating. As an example of the activity, Shell Oil Company started a $7,000,000 exploration program in Alberta alone in 1950, a year in which a total of $150,000,000 was spent in exploration and development in that province. Between 1950 and 1954, the industry spent $30,000,000 on exploration in Saskatchewan.[16]

When the sensitive instruments on the geophysical trucks detected significant variations in the underground structure, drilling crews bored exploratory wells. Between 1945 and 1955, oil companies put down 4,164 exploratory wells. The first flurry was over by 1952 and the industry settled down to a developmental program of about 900 wells a year in western Canada. To illustrate the pattern: between January and September, 1950, a total of 702 wells were drilled in Alberta; of that number, 529 reached pay zones, 29 tapped gas reserves, and 144 were dry holes. With the developers nibbling at Saskatchewan, 50 test holes were drilled during the summer of 1950. Although exploratory drilling has been limited in the North West and Yukon territories, the industry is confident they, too, will produce.[17]

The exploratory wells brought in a string of significant discoveries. Western Canada's eight fields of 1946 mushroomed to approximately 150 by early 1955. Ten were major fields – that is, fields containing at least 100,000,000 barrels each – and accounted for 75 per cent

[15] C. K. LeCapelain, Chief, Lands Division, Department of Northern Affairs and National Resources, letter to author, May 2, 1955; Government of Canada, *Order in Council, P. C. 1954-1590,* Oct. 19, 1954; *Recent Developments in the Canadian Oil Industry,* 7, 11.

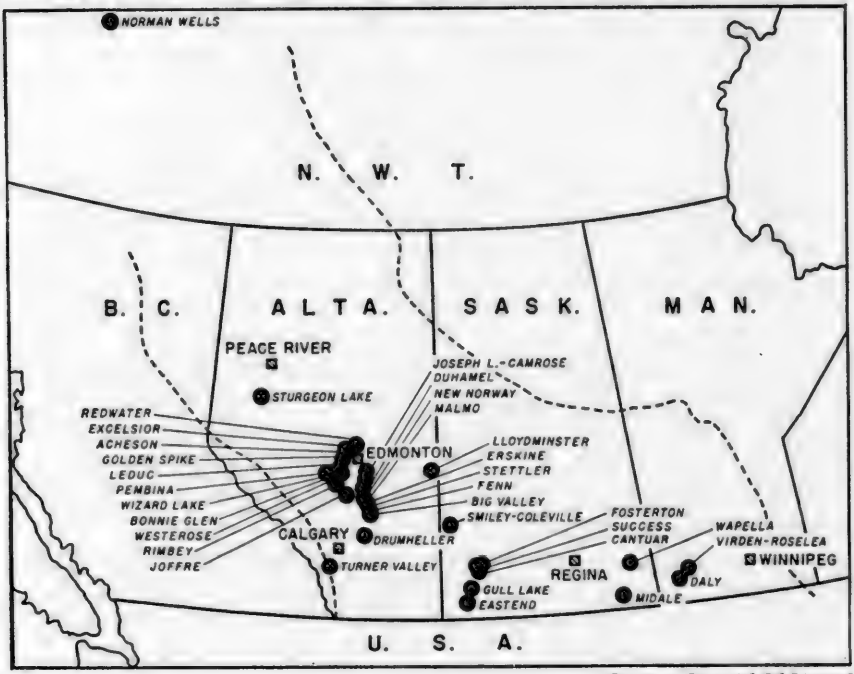
[16] E. W. Shaw, *Summary of "Three Billion Barrels of Oil," an Address by Dr. E. W. Shaw, Exploration Advisor, Imperial Oil Ltd., before the Twenty-third Annual Convention of the Prospectors and Developers Association, March 7, 1955* (Imperial Oil, Toronto, 1955), 2, hereafter cited as Shaw, *Summary*; Province of Alberta, *Budget Speech, 1950,* p. 5; Grant, *Now We've Got Oil Plenty,* 5; *Recent Developments in the Canadian Oil Industry,* 1, 2, 4, 11.

[17] Shaw, *Summary,* 2; *Recent Developments in the Canadian Oil Industry,* 3, 11; Grant, *Now We've Got Oil Plenty,* 6.

of the oil discovered. Dotting the west, the fields stretch from the Peace River district of British Columbia, across Alberta, through Saskatchewan and into southern Manitoba. (Chart II.) Indicating the extensive dispositions of oil deposits, geologists identified six producing formations – Cretaceus, Jurassic, Triassic, Permo-Pennsylvanian, Mississippian, and Devonian, with the last-named accounting for 73 per cent of the oil.[18]

CHART II

IMPORTANT OIL FIELDS IN WESTERN CANADA 1953



Courtesy, Imperial Oil Limited

Although new fields and producing areas were recorded in a mounting wave, the odds were against discovery. Illustrating the gamble involved and the large amounts of risk capital required in developing petroleum resources, a capitulation in 1954 showed that only one well out of 54 found a commercial field; that is, one containing at least 1,000,000 barrels. To find a field of more than

[18] Holbrook, *Oil from the Earth*, 21; Shaw, *Summary*, 2–3.

50,000,000 barrels required 336 wells. And to find a major field – of 100,000,000 barrels or more – 504 wells were required.[19]

Nevertheless, western Canada yielded many big fields. It was estimated in 1951 that Alberta had exceeded Texas in the proportion of big fields found; that is, fields of more than 50,000,000 barrels. The estimate placed 4 per cent of Texas discoveries in 50 years as big fields, and Alberta's proportion at 11 per cent in four years.[20]

Some of the later discoveries made the once exciting Leduc field seem paltry. In 1948 Alberta yielded the Redwater field, north of Edmonton, containing approximately 450,000,000 barrels, which was termed the most important discovery of the year in North America. In 1949 came the Golden Spike field, southwest of Edmonton, in which a later well encountered 595 feet of oil-bearing rock, the thickest strata found in Canada up to that time. Then in 1953 came the greatest strike of all – the Pembina field, southwest of Edmonton, giving promise of one billion barrels by primary production and millions more by secondary recovery. Most of the major strikes in Alberta were clustered in the Edmonton area until the Sturgeon Lake field was found 175 miles northwest of Edmonton, indicating the oil area was more extensive than had been realized. Fields were discovered in southwestern Manitoba in 1953, and 19 new fields were found in Saskatchewan in 1954. The first indicated commercial discovery in British Columbia came in 1955.[21]

As discoveries mounted, so did Canada's petroleum reserves – a windfall for an industrial nation theretofore dependent upon other nations for most of its fuel supplies, coal as well as oil. At the time of the Leduc discovery, Canada had an estimated 72,000,000 barrels of petroleum reserves. By 1954 oil reserves had increased to 2,207,614,000 barrels, without full allowance for the giant Pembina field. (Table 3.) Sometimes the estimated reserves increased suddenly. For instance, an oil executive estimated the reserve at 1,350,000,000 barrels in mid-September, 1951, and six weeks later at 1,700,000,000. The reserves do not take into account the Athabasca tar sands in northern Alberta, which may yield more than 100,000,000,000 barrels when a method is devised for extracting the oil. In addition to proven reserves, geologists have identified a salt

[19] Grant, *Now We've Got Oil Plenty*, 7.

[20] Wilson, *The Oil Bonanza*, 3.

[21] Province of Alberta, *Budget Speech, 1949*, p. 4; *ibid., 1950*, p. 5; Province of Saskatchewan, *Budget Speech, 1955*, p. 16; Holbrook, *Oil from the Earth*, 21; Grant, *Now We've Got Oil Plenty*, 2; Shaw, *Summary*, 2–3.

dome in the Arctic, a structural type associated with large deposits in other oil areas of the continent.[22]

The Pattern of Industry Development

To utilize the new resources properly, the three prairie provinces shouldered additional governmental responsibilities. Each established an oil and gas conservation agency to exercise regulatory functions, co-operating with the departments responsible for mineral resources. Western Canada avoided the waste and market dislocation that accompanied earlier oil discoveries in North America, profiting from the experience of older producing areas. The provinces fashioned their conservation laws against the background of experience in Texas, California, Mid-Continent and other producing areas.

Alberta adopted prorationing early, setting up producing quotas for all operators in a field and limiting production to the forecasts of market demand. In addition, the province followed a five-point program for orderly development by individual enterprise. The program in outline follows: (1) To encourage orderly development to meet increasing requirements and make Canada less dependent on other countries. (2) Prevent waste by requiring that development proceed in accordance with the best engineering practices. (3) To regulate exploration and leasing in a manner that would prevent monopoly. (4) Provide the people of the province with a fair share of oil returns. (5) Guarantee the owner of surface rights fair and generous treatment.[23]

The development of Saskatchewan's regulatory measures is illustrative of the flow and interchange of technology, capital, cooperation, and know-how across the 49th parallel. The province adopted regulatory legislation in 1936, adequate for the single field — Lloydminster — which produced only a heavy oil suitable for asphalt. But by 1951 increasing discoveries foretold the need for a stronger measure. Officials of the Department of Mineral Resources visited regulatory agencies in other provinces, and in Kansas, Louisiana, Texas, and Oklahoma, as well as the offices of the Interstate Oil Compact Commission. On the basis of the experience revealed in those studies, a proposed act was drafted and brought

[22] Mackenzie, *Summing Up*, 1; Wilson, *The Oil Bonanza*, 1; Grant, *Now We've Got Oil Plenty*, 2, 6.

[23] Province of Alberta, *Budget Speech, 1948*, p. 6; *ibid., 1950*, p. 3; Twaits, *Canadian Oil at the Eighth Milestone*, 6.

into final form through consultation with industry specialists. Manitoba adopted regulations under provisions of a mining act of 1940, which was strengthened in 1955 to provide more specifically for oil and gas.[24]

As a result of the conservation measures, the industry in western Canada developed along orderly, systematic lines. Canadian production zoomed from 7,000,000 barrels in 1947 to 95,000,000 in 1954. Income increased accordingly. The 1948 production of 12,370,873 barrels was valued at $37,418,895; the 1952 production of 61,237,322 barrels at $143,038,212. Eighteen months after Leduc, Canada displaced Trinidad as the leading oil producer of the British Empire. With Alberta accounting for approximately 90 per cent of the production, Canada was the sixth-ranking oil producer in the world by 1953.[25] (Table 4.)

In drilling wells, oil companies used techniques similar to those of the Mid-Continent and Texas areas. Early Leduc wells required two to three months to complete, while drillers were learning the characteristics of structure and reservoir, but by 1948 they were drilled in 25–35 days and completed in 35–45 days. The rate of drilling in western Canada rose from 64 wells a year in 1946 to 1,254 in 1952, and dropped to 1,217 in 1953, while the number of producing wells rose from 393 to 4,498, a cumulative figure, between 1946 and 1953. The cost of drilling in western Canada varied from $25,000 to $200,000 per well, depending upon depth.[26]

While oil production multiplied, consumption also spurted ahead. Between 1946 and 1953 Canadian oil consumption increased by 131 per cent, compared with 57 per cent in the United States during the

[24] C. A. L. Hogg, Deputy Minister of Mineral Resources, Saskatchewan, letter to author, May 12, 1955; Department of Mineral Resources, Saskatchewan, *The Oil and Gas Conservation Act, 1952, and Regulations Thereunder* (Regina, 1953), *passim*; J. G. Cowan, Deputy Minister, Department of Mines and Natural Resources, Manitoba, letter to author, May 13, 1955; Province of Manitoba, *Bill No. 79, An Act to Amend the Mines Act, Legislative Assembly of Manitoba, 1955*, pp. 1–2; Department of Mines and Natural Resources, Manitoba, *Regulations Under "The Mines Act," 1940 R. S. M. Ch. 136, for the Disposal of Oil and Natural Gas Rights on Crown Lands and the Exploration, Development and Production of Oil and Natural Gas in Manitoba* (Edmonton, 1953), *passim*.

[25] D. B. S., *The Crude Petroleum and Natural Gas Industry, 1952*, p. H-5; Imperial Oil, *Reference Data*, 6; D. B. S., *The Petroleum Products Industry, 1949* (Ottawa, 1951), p. C-8; *ibid., 1952*, p. C-8; Toombs, letter to author, May 9, 1955; Holbrook, *Oil from the Earth*, 17; Royal Bank of Canada, "A Story of Oil," *Monthly Letter* (Nov., 1949), p. 4.

[26] Twaits, *Canadian Oil at the Eighth Milestone*, 3; Neil Williams, "Leduc Rapidly Becoming Canada's Greatest Oil Reserve," *Oil and Gas Journal* (April 15, 1948), p. 100; Imperial Oil, *Reference Data*, 6; Royal Bank of Canada, "A Story of Oil," 3.

same period. Even though 1953 production reached the unprecedented total of 80,000,000 barrels, Canada still had to import 108,000,000 barrels to meet demand. It was through the western development that Canada met a larger share of the demand, but it was also because of the western development, in part, that market demand increased, especially in the west where cheaper fuel became available. By 1953 Canada was the third largest oil consuming nation in the world, with one-third of the homes heated by oil, one motor vehicle for every four persons, and three tractors for every four occupied farms. (Table 5.) The greatest increase in consumption came in middle distillates (lighter fuel oils used for home heating) which accounted for more than one-fourth of all Canadian petroleum requirements. Between 1946 and 1953, gasoline consumption increased by 103 per cent, and the number of motor vehicles increased from 1,600,000 to 3,000,000. In spite of the greater consumption, Canadian oil fields met 43 per cent of the domestic demand in 1953.[27] (Table 6.)

The fields could have supplied a greater proportion of the market demand, as much as 70 per cent in 1954, but the western producing area was landlocked — a characteristic that has had a continuing influence upon petroleum development. The Leduc discovery was 1,700 miles from the refining center at Sarnia, Ontario, 1,200 from Minneapolis, 1,100 from the head of the Great Lakes, 825 from Seattle, and 700 from Vancouver.[28]

The geographic disadvantage complicated the industry's process of growth. Before Leduc, the industry (by comparison with its southern counterpart) restricted itself largely to the refining-marketing functions, with production and transportation of lesser significance. But the sudden acquisition of large crude oil resources forced it to "grow up" quickly, to handle a domestic production which superimposed upon existing facilities an amount of oil equal to the total national consumption of 1946. At the same time consumption surged farther ahead, creating additional market pressure. The combination of production and market pressures compelled the industry to develop an integrated continental position almost overnight, achieving a workable balance among the four component industries. In meeting the challenge, the industry encountered serious obstacles in transportation, refining, and marketing.

[27] D. B. S., *Petroleum Products Industry, 1949*, p. C-13; *ibid., 1952*, p. C-13; Imperial Oil, *Reference Data*, 2, 3; Holbrook, *Oil from the Earth*, 17; Wilson, *The Oil Bonanza*, 2.

[28] Wilson, *The Oil Bonanza*, 3–4.

Transportation was the first bottleneck. In the early days of the Leduc field, operators trucked crude oil from the well to a railhead at Nisku, sometimes in field storage tanks lashed to truck beds. From Nisku the oil moved to refineries at Regina and Moose Jaw by railroad tank car – the most expensive form of oil transport. Thus, Leduc crude traveled 500 miles overland to reach its first customer, an unusual situation in the industry. Refining was the second bottleneck. With the greater home market inaccessible because of distance, western operators found even the accessible prairie market denied them at first because of refinery limitations. Many prairie refineries operated at reduced runs, due to a belief that it was cheaper to import refined products than to import and process crude. In addition, western operators encountered worldwide competition once they did penetrate the large markets of eastern Canada and the Pacific Coast.[29]

To get the oil to market, the industry built 2,500 miles of crude oil trunk pipelines east and west from Edmonton, in addition to extensive gathering systems within the fields. The major lines were Interprovincial, going east, and Trans Mountain, going west. In 1948 Canada had 418 miles of pipeline; by 1953 the total mileage was 3,924.[30] (Chart III.)

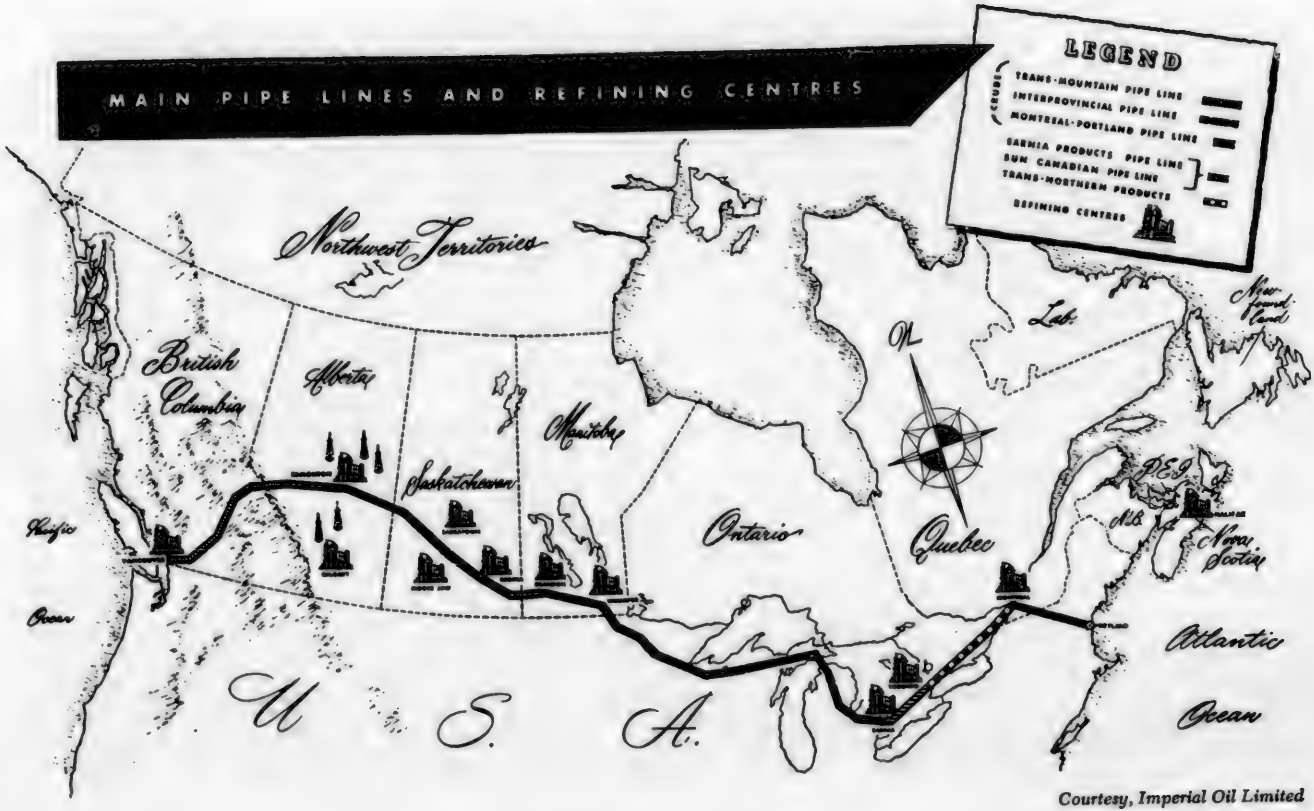
With the eastern market as the first objective, Imperial and other companies formed the Interprovincial Pipe Line Co. to link Edmonton with Sarnia, at the foot of Lake Huron. Interprovincial first built a line from Edmonton to Superior, Wisconsin, by way of Regina, displacing 800 railway tank cars between Edmonton and Regina. Completed in 1950, the Edmonton-Superior line cost approximately $92,500,000. To ferry the crude from Superior to Sarnia, the company bought four large lake tankers for $17,000,000 – three from Collingwood and one from Port Arthur, Ontario, shipyards. By 1952, however, the production and demand created such additional pressure – especially during the winter when ice sealed the lakes – that Interprovincial closed the Superior-Sarnia gap with a $76,000,000 extension of the pipeline across Minnesota, Wisconsin, and Michigan.

Continued expansion of the industry forced additional expansion of the pipeline, and in 1954 Interprovincial spent another $55,-

[29] Grant, *Now We've Got Oil Plenty*, 2; Trevor F. Moore, *Remarks of Mr. Trevor F. Moore, Vice-President, Imperial Oil Ltd., to the Advertising and Sales Club, Winnipeg, Manitoba, April 18, 1955* (Imperial Oil, Toronto, 1955), 2, 4, hereafter cited as Moore, *Remarks*; Twaits, *Canadian Oil at the Eighth Milestone*, 9–11.

[30] Mackenzie, *Summing Up*, 4; Imperial Oil, *Reference Data*, 7.

CHART III



Courtesy, Imperial Oil Limited

000,000 on looping – that is, doubling, as railway tracks are doubled – and additional pumping stations. With a total length of 1,772 miles, Interprovincial is the longest crude oil trunk pipeline in the world. Maximum diameter, at the western end, is 30 inches. Fifteen pump stations push oil through the line, which serves 10 prairie refineries as well as points in Minnesota, Wisconsin, and Michigan. The line is designed for an ultimate capacity of 300,000 barrels. Present (1955) input capacity at Edmonton is about 215,000 barrels daily.[31]

Another important market lay in British Columbia, undergoing an industrial boom of its own, and the Pacific Northwest. This was the market tapped by the 711-mile Trans Mountain pipeline, completed in 1953 at a cost of $86,000,000. Linking Edmonton and the Vancouver area, Trans Mountain sent laterals to new refineries in the state of Washington.[32]

Expansion of transportation placed ever greater quantities of crude oil in marketing centers where it yet had to be converted into marketable products. To that end, the refining industry underwent a continuing enlargement. In 1946 Canada had 30 refineries with a capacity of 245,965 barrels of crude. In seven years the industry added seven plants and doubled refining capacity. The enlarged capacity of 509,300 barrels daily reflected both new refineries and enlargement of older plants. On the prairies, where refineries had operated at reduced runs, the industry took advantage of an opportunity to supply an entire market with domestic fuel. Between 1947 and 1954 the capacity of prairie refineries increased fourfold, doubling once to meet the demand of greater farm mechanization and a higher living standard. In the process, Edmonton, Winnipeg, and Regina became refining centers. And the output of all Canadian refineries rose accordingly.[33] (Table 7.)

Naturally, the expansion made refineries even better customers for other industries. In 1948 Canadian refineries bought $308,000,000 worth of materials used in processing oil, and in 1952, $442,000,000. The materials included crude oil, absorption gasoline, benzol, alkylate, phenol, sulphuric acid, sulphur, caustic soda, soda ash, litharge, Fuller's earth, bentonite and other clays, compounding ma-

[31] Holbrook, *Oil from the Earth*, 21; *Recent Developments in the Canadian Oil Industry*, 4, 13; E. M. Holbrook, Information Division, Imperial Oil Ltd., letter to author, April 29, 1955; Grant, *Now We've Got Oil Plenty*, 3.

[32] Holbrook, *Oil from the Earth*, 21.

[33] D. B. S., *Petroleum Products Industry, 1949*, p. C-5; *ibid., 1952*, p. C-5; Moore, *Remarks*, 4.

terials, tetraethyl fluid, dyes for gasoline, shipping containers, and other materials.[34]

But the processing of petroleum products is not limited to refineries. The petroleum products manufacturing industry also involves plants that compound oils and greases, as well as absorption gasoline plants. Five absorption plants, established in Alberta, produced dry gas, natural gasoline, propane, butane, and sulphur. In 1946 Canada had 43 petroleum products manufacturing plants – including refineries – and in 1952, 55. Employment in 1946 was 7,145 persons who received $14,000,000 in wages and salaries. Employment rose to 11,661 in 1952; wages-salaries to $46,000,000. Likewise, the value of the products went up from $223,000,000 to $660,000,000.[35]

Even with enlarged transportation and refining systems, the oil industry faced serious problems in marketing western crude. With production potential increasing at the same time that refineries and pipelines were enlarged, the lack of accessible markets severely restricted production. Alberta wells were held to as little as one-fourth of the most economic rate of production.[36]

Competition from foreign oil further complicated the marketing picture. Once western oil left the prairies, it encountered world competition, meeting oil from South America, the Middle East, Indonesia, Texas, the Mid-Continent, and California. In both the eastern and Pacific Coast consuming areas, tankers delivered crude for less than western Canada producers could. Western crude reflected a transportation charge of 3 cents per 100 barrel miles, thrice that of tanker-borne oil. In consequence, western producers absorbed a transportation penalty, selling their crude oil at well-head for less than the well-head price of other areas. In 1955 the posted price in Redwater, for instance, was $2.58 per barrel, contrasted with $2.80 for the Rocky Mountain, Mid-Continent and Gulf regions; with $3.21 for California; and with $2.85 (f.o.b.) for Venezuela. By 1954 the competitive situation was not due entirely to transportation inadequacy. Rather, the difficulty lay in the fact that all other producing nations had more oil to sell than the available markets could absorb.[37]

Nevertheless, western producers gradually expanded their markets

[34] D. B. S., *Petroleum Products Industry, 1949*, p. C-6; *ibid., 1952*, p. C-7.
[35] *Ibid., 1949*, p. C-3; *ibid., 1952*, pp. C-3, C-4, C-21.
[36] Province of Alberta, *Budget Speech, 1951*, p. 4; *Recent Developments in the Canadian Oil Industry*, 5.
[37] Twaits, *Canadian Oil at the Eighth Milestone*, 9–11; Grant, *Now We've Got Oil Plenty*, 1–2.

between 1947 and 1955. The expansion proceeded in three phases: First, western oil satisfied the needs of prairie provinces by 1949, with the refinery enlargements; secondly, the Interprovincial pipeline took western oil into the Great Lakes market by 1950; thirdly, the Trans Mountain pipeline pierced the Pacific Coast market in 1953. A new refinery at Winnipeg helped complete the dominance of the prairie market. Theretofore, two-thirds of Manitoba's requirements had been supplied by eastern refineries using United States crude. Too, the Winnipeg refinery supplied part of northeastern Ontario. To use crude from the Fosterton field in Saskatchewan, a refinery was built at St. Paul, Minnesota, expected to go "on stream" in 1955. By 1955 the western industry supplied the needs of virtually all of Canada west of Toronto.[38]

When Alberta's 1949 production amounted to enough oil to meet all prairie needs, optimistic Albertans predicted the province would be able to serve the entire nation within four or five years. But oil men were less optimistic, doubting that western crude could ever economically supply the entire Canadian market, because of the transportation difficulties. Montreal is 2,300 miles from Edmonton, Halifax 3,000. The longest overland haul in the United States is from West Texas to the Great Lakes, less than 1,500 miles. Thus, western Canada still faced market restrictions in 1955. The area had a daily potential of 420,000 barrels at MER (maximum efficient rate of production), but production was expected to be limited to 330,000 barrels daily, the amount of the anticipated market demand in British Columbia, Puget Sound, Prairie Provinces, Lakehead-Minneapolis area, and Ontario.[39]

Between 1947 and 1954 sales of western crude returned to the industry about half as much money as had been spent in obtaining the oil. Part of the sales represented an export of crude oil to the United States of 49,000,000 barrels in 1952, along with small quantities of refined products. Dollar returns from the sale of petroleum products would have been larger had it not been for the fact that gasoline prices advanced less than the general price level. With 1939 as 100, gasoline prices of 1953 stood at 147, while average wages and salaries stood at 244.[40] (Table 8.)

Marketing difficulties led oil men to consider two alternatives for

[38] Twaits, *Canadian Oil at the Eighth Milestone*, 2, 8; *Recent Developments in the Canadian Oil Industry*, 9; Bank of Nova Scotia, "Impact of Leduc," 3–4.

[39] Province of Alberta, *Budget Speech, 1950*, p. 5; Twaits, *Canadian Oil at the Eighth Milestone*, 7–8, 11–12.

[40] Mackenzie, *Summing Up*, 4; Toombs, letter to author, May 9, 1955; D. B. S., *Crude Petroleum and Natural Gas Industry, 1952*, p. H-8.

long-range development. One was whether to reduce the well-head price of western crude; the other, continental development of petroleum resources. As of early 1955 the question appeared to be unresolved, one reason being that any marketing decision would determine the future of the industry for a good many years, because of the relative inflexibility of the transport system.

Where price was concerned, the westerners faced a possibly promising prospect. They expected the average drilling depth to be less than in the United States, which would reduce cost of operation. Going along with this was the equally promising prospect of reaching more distant markets by lowering the well-head price. Thus, it was anticipated by some that a reduction in well-head price might mean larger profits through larger marketings.[41]

The second alternative was continental development. That is, some industry planners turned their thoughts toward integrating western Canadian production into the over-all pattern of North America. Thus, the United States and Canada would exchange crude oil on the most economical basis. One method of doing this would be to funnel United States oil into the heavy consuming area of eastern Canada and let western oil flow into the northwestern states, under a firm agreement. Long-range thinking therefore involved three possibilities – one extreme of selfish nationalism, a happy medium, and the "perfection" of continental development that would disregard the 49th parallel.[42]

The continental plan had particular application to natural gas. Along with discovery of oil fields, drillers tapped numerous gas deposits in all three prairie provinces. (Chart IV.) Most of the gas was in Alberta, where the 1951 estimated proven reserve was 11 trillion cubic feet. There was some production, of course; in 1949 Alberta produced 67,093,000 million cubic feet, valued at $3,355,000. But most of the wells were shut in, awaiting pipeline transportation and market. The Alberta government delayed natural gas development, adopting the policy that export would be forbidden until reserves were enough to provide future provincial needs first, national needs second, and a surplus third. But by 1953 Alberta had 300 capped gas wells, representing an investment of $18,000,000, and the government decided to approve export of gas that was surplus after meeting local needs.[43]

[41] Grant, *Now We've Got Oil Plenty*, 4.

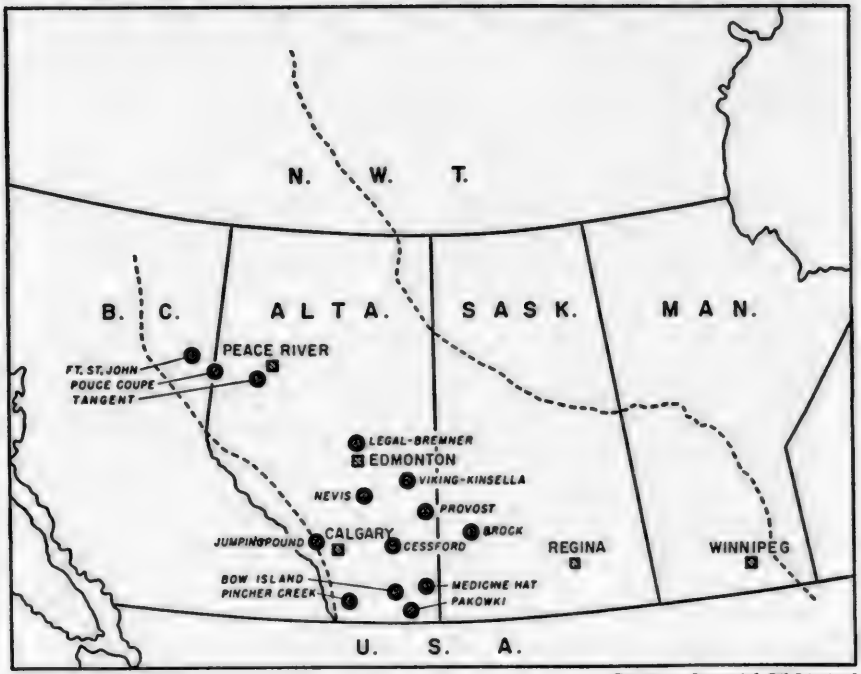
[42] Wilson, *The Oil Bonanza*, 1–2.

[43] Province of Alberta, *Budget Speech, 1950*, p. 6; *ibid., 1953*, p. 8; Wilson, *The Oil Bonanza*, 1; *Recent Developments in the Canadian Oil Industry*, 8.

Even before the Alberta government changed its policy, developers had laid plans for six large pipeline networks that would take Alberta gas to eastern and western markets. Four were designed for the Pacific Coast market, and one of them anticipated the delivery of 350,000,000 cubic feet daily. The most ambitious plan of the six was Delhi Corporation's proposal to build a Trans Canada Pipe Line, 2,200 miles long and costing $300,000,000, to serve Mont-

CHART IV

IMPORTANT GAS FIELDS IN WESTERN CANADA 1953



Courtesy, Imperial Oil Limited

real, Ottawa and Toronto. Engineers envisioned the use of railroad right-of-way and storage in underground "pockets" in Ontario, which had been emptied of their gas contents in earlier exploitation. Another, Western Pipelines, proposed to go from Pincher Creek, in southern Alberta, to Winnipeg, Superior, Duluth, and the Mesabi iron ore range.[44]

[44] Wilson, *The Oil Bonanza*, 5–6.

Later, the federal government co-operated in having Trans Canada and Western merge their plans into one large undertaking. When Alberta's provincial treasurer, Ernest C. Manning, reported the development to the Legislative Assembly, he said such a pipeline would have an economic effect that could be compared only with the building of the Canadian Pacific Railway in 1885.[45]

The continental plan in application to natural gas would involve a "swap" of Canadian and United States gas. Alberta gas would go into the Pacific Northwest and western states, and United States gas would go into Ontario. However, some Canadians were cautious about such an arrangement, wanting to assure a supply for British Columbia first, because a firm commitment to serve large markets like Seattle and Spokane would impose a long-term obligation. Moreover, the United States Federal Power Commission denied a permit for a line going into Washington.[46]

Impact of Oil on the Canadian Economy

In all, expansion of the oil industry reflected a capital outlay of more than two billion dollars between 1947 and 1954, and produced manifold effects upon the Canadian economy. However, in reviewing some of the results, one must bear in mind that the oil play coincided with a quickening rate of economic development due to postwar prosperity and, in the West, good agricultural markets. Nevertheless, the direct and indirect effects of oil and gas can be seen in such diverse areas as finance, industry, education, population, agriculture, and coal. The western provinces reacted first, and most strikingly, to petroleum.

Oil money entered the prairie economy through three principal channels – expenditures for exploration and development, expenditures for facilities, and payment of royalty. Together they channeled more than $400,000,000 into the three provinces during 1953 alone, an amount estimated as the equivalent of almost one-third of the total purchasing power of agriculture, the prairie stand-by.[47]

Oil enriched the governments of the prairie provinces. In contrast with the United States, where landowners receive mineral royalties, most of the western mineral rights are reserved to the Crown, and the rights are held by provincial governments. Thus, the provincial governments extracted oil money through rentals for land under lease and land covered by permits to explore, from royalties of 12.5

[45] Province of Alberta, *Budget Speech, 1954*, pp. 9–10.
[46] Wilson, *The Oil Bonanza*, 6–7; Bank of Nova Scotia, "Impact of Leduc," 4.
[47] White, *Prairie Progress*, 11.

per cent, and from fees for licenses and miscellaneous services.[48]

Because of oil, provincial revenues increased sharply. (Table 9.) As a single example, Alberta received more than $31,000,000 in one month (January, 1954) from the sale of leases and reservations. Two of the sales covered 92,160-acre reservations in the Pembina area, and netted $13,000,125 and $11,087,533. In addition, provincial revenues increased through greater tax incomes that were stimulated by oil. For instance, increased gasoline consumption was related to the industry's development, and the three provinces increased gasoline tax receipts between 1946 and 1952 – from $73,683,205 to $196,885,566.[49]

Although direct revenue to the federal government was small – only Indian lands and those in the North West Territories come under Dominion jurisdiction – the nation received a direct financial benefit from western oil. That came about through the saving in United States exchange. By producing part of its own oil, Canada saved or diverted to other uses the money that would have been spent for United States oil. The amount of that saving was variously estimated at one to a hundred million dollars annually. Although machinery and equipment imports displaced oil imports in part, they were paid for by United States capital that came into the oil country.[50]

Saskatchewan's provincial revenue from petroleum and natural gas rose from $46,807 in 1947–1948 to $4,974,900 in 1953–1954, most of it from rentals since the province was in the exploratory stage of development. Manitoba, a relative newcomer to oil play, was beginning to show the effects of petroleum by 1955. Revenue from oil rose from a mere $11,000 in 1947–1948 to approximately $500,000 for 1954–1955. However, Manitoba will not benefit from oil as much as the other provinces, because more of the mineral rights are held privately.[51]

[48] W. L. Haney, Administrative Assistant, Deputy Provincial Treasurer, Saskatchewan, letter to author, May 2, 1955; F. G. Stewart, Acting Deputy Provincial Treasurer, Alberta, letter to author, April 25, 1955.

[49] D. B. S., *Petroleum Products Industry, 1949*, p. C-12; *ibid., 1952*, p. C-12; Royal Bank of Canada, Oil and Gas Department, *Bulletin No. 17, Industry Statistics* (Calgary, 1954), 3.

[50] Toombs, letter to author, May 9, 1955; Province of Alberta, *Budget Speech, 1949*, p. 5; Holbrook, *Oil from the Earth*, 18; *Recent Developments in the Canadian Oil Industry*, 5; Grant, *Now We've Got Oil Plenty*, 7; Bank of Nova Scotia, "Impact of Leduc," 4.

[51] Haney, letter to author, May 2, 1955; F. B. Brisbin, Assistant Deputy Provincial Treasurer, Manitoba, letter to author, April 29, 1955; D. H. Cooper, *Benefits of the Western Oil Development* (Imperial Oil, Toronto, 1954), 3.

The most striking wealth accrued to the Province of Alberta where 93 per cent of mineral rights were Crown reserve. Once the poor relation of Canadian provinces, Alberta's total revenues climbed from $40,000,000 to $197,000,000 between 1946 and 1954. Most of the increase came through oil. For example, oil accounted directly for $96,399,235 of the 1954 income. When the money started rolling in, the provincial government adopted a policy in 1948 of allocating all oil revenue from Crown lands to capital construction and debt retirement. The policy paid off in the following fashion: Between 1948 and 1949, oil revenue amounted to $283,833,000, while expenditures for capital construction and debt retirement amounted to $287,972,000. Thus, with current income, Alberta undertook a large-scale construction program – chiefly represented by highways and public buildings – which otherwise would have been impossible without increased taxation or public borrowing.[52]

Inspired by the free spending of an oil boom during which Alberta's total personal incomes almost doubled, buoyant business contributed to further increases in tax revenue. The increased business volume was reflected in statistics (Table 10) showing among other things that bank clearings rose from $1,400,000,000 to $4,500,000,000 a year between 1946 and 1954. And in March, 1953, the provincial treasurer happily announced that Alberta was the first Canadian province to accumulate cash surpluses and investments in excess of total indebtedness. Because of oil, Alberta was out of the red, in spite of record spending for social services and capital construction.[53]

Financial effects of oil were felt on the stock exchange, too, as when two small companies were suddenly enriched. Merrill Petroleums and Canadian Collieries, whose respective stocks sold at about $2.00 in 1953, held interests of 10 and 6¾ per cent, respectively, in an Alberta wildcat. Their well opened the huge Pembina field with its billion-barrel reserve. Anticipating a prospective revenue of $100,000,000 from the one well, Merrill sold stock a year later at $8.50. Canadian Collieries sold at $9.75, and a coal company found oil investment more important than its own product. Word of such strikes, which occur in almost all oil areas, spread and gave rise to the idea that oil pays off with little effort. To correct

[52] *Recent Developments in the Canadian Oil Industry*, 7; Stewart, letter to author, April 25, 1955; Province of Alberta, *Budget Speech, 1950*, p. 18; *ibid., 1955*, p. 24; Bank of Nova Scotia, "Impact of Leduc," 1.

[53] Bank of Nova Scotia, "Impact of Leduc," 1; Province of Alberta, *Budget Speech, 1953*, p. 3.

such impressions, the Royal Bank of Canada reminded investors that oil is not easy money, that oil is an outstanding field for enterprise, but one that entails much expense and great risk, and that the industry "is one to be tackled only by venturesome men." [54]

Interconnected with the financial results were the industrial effects, stimulating Canadian economy from east to west. Nationally, Canadian manufacturers received calls for goods needed in building pipelines and refineries, in drilling oil wells, and in a myriad of other construction projects radiating from an undertaking of oil's magnitude. The United States supplied much of the specialized equipment, but central Canada nonetheless produced a large share of it – engines for pump stations, tubing for wells and pipelines, and wrapping for pipelines. A mill was built in Welland to turn out 16-inch pipe for the Interprovincial line. More and more oilfield equipment came to be made in the West, close to the source of demand. Refinery expansion placed Winnipeg and Edmonton in the front rank of oil refining centers. Investment in oil, and its production of a cheaper fuel, improved the position of basic industries in the West. Not the least of all was the effect upon Canadian railroads which, with oil, turned more and more to oil-burning steam locomotives as well as diesels, replacing coal burners.[55] (Table 5.)

The industrial picture comes into sharper focus in Alberta. Year by year, from 1948 through 1955, the Alberta *Budget Speech* enumerated hundreds of new businesses. Between 1946 and 1953 industrial employment increased more than 50 per cent and capital expenditures 18-fold. The amount of public and private money invested in 1953 was 250 per cent greater than in 1948, compared with an 80 per cent gain for the nation. With less than 7 per cent of the national population, Alberta accounted for 13 per cent of Canada's capital expenditures in 1953.[56]

More specifically: Industrialists established a plant to make caustic soda (used in refining) from the province's deposits of salt and natural gas; another plant made explosives for the exploration crews; plants in Calgary and Edmonton made or assembled oilfield equipment – drill bits, pumps, valves, and the like. Distributive houses expanded to handle the Alberta-made products and imported trucks, pipe, and machinery. A nickel refinery, costing

[54] Grant, *Now We've Got Oil Plenty*, 7; Royal Bank of Canada, "A Story of Oil," 3.

[55] Bank of Nova Scotia, "Impact of Leduc," 4; White, *Prairie Progress*, 12; Moore, *Remarks*, 4; Cooper, *Benefits of Western Oil Development*, 10.

[56] Bank of Nova Scotia, "Impact of Leduc," 1–3.

$24,000,000, made use of natural gas in a new ammonium-leeching process. Another was a $70,000,000 plant making cellulose acetate, yarns and fibres from liquefied petroleum gases and British Columbia woodpulp. Yet another was a $15,000,000 factory to extract ethane from Leduc natural gas in the manufacture of polythene, a plastic theretofore available in Canada only as an import.[57]

Education also felt the subsidiary effects of oil. Under the impetus of new employment and development opportunities, the Universities of Alberta and Saskatchewan initiated curricula in petroleum engineering. Graduating the first petroleum engineers in 1950, Alberta was the first Canadian university to establish such a course, and also conducted short courses for oil-field workers. Theretofore, young Canadians interested in petroleum engineering studied in the United States, most of them becoming lost to Canada. The University of Saskatchewan announced a petroleum engineering course for institution in the fall of 1955, consisting of one year's instruction after the completion of three years in either chemical or geological engineering. In 1950 a petroleum laboratory was opened at the University of Saskatchewan through co-operation of the school and Provincial Department of Natural Resources.[58]

Population also reacted to the petroleum stimulant. Although Saskatchewan continued a downward trend that started during the depression, Manitoba showed some increase and Alberta a large increase in population. Population of the latter increased 143,332 between 1941 and 1951, the most noteworthy gain being in urban population — 70 per cent. Edmonton ranked as Canada's fastest-growing city.[59]

More people meant more homes, and Alberta underwent a housing boom in company with the oil boom. Saskatchewan and Manitoba hit a postwar building peak in 1947, but Alberta kept growing, reaching a postwar record of 9,900 units in 1953. The relationship of housing to oil was shown by Calgary and Edmonton which accounted for 32,700 of the 51,800 units built in the province between Leduc and 1953. Each town built more houses in 1952 and 1953 than did Winnipeg with twice the population. The housing con-

[57] *Ibid.*, 2; Province of Alberta, *Budget Speech, 1948*, p. 7; *ibid., 1952*, p. 7; *ibid., 1954*, p. 12.

[58] I. M. Fraser, Dean of Engineering, University of Saskatchewan, letter to author, April 27, 1955; *Recent Developments in the Canadian Oil Industry*, 10, 12.

[59] D. B. S., *Ninth Census of Canada*, 11 vols. (Ottawa, 1953–?), I:1–1; Bank of Nova Scotia, "Impact of Leduc," 1, 2.

struction called upon eastern industry for fabricated materials and equipment.[60]

Agriculture, the very mainstay of the prairies, likewise felt oil's impact. Prairie farmers more than tripled their mechanized units between 1941 and 1951. (Table 5.) In this respect, petroleum must be relegated to an ancillary role, for the decade was a prosperous one for farmers. Under the intoxicant of wartime and postwar prices, Alberta's net farm income rose from $90,000,000 in 1941 to $302,000,000 in 1948. Between 1937 and 1949 Alberta farmers reduced mortgages from 13,177 to 3,815 in number and $39,700,000 to $8,700,000 in value. With greater purchasing power, prairie farmers followed the trend toward wider use of expensive, motor-driven machinery. But western oil discoveries, and refinery expansions, gave further impetus to the trend. Before Leduc, prairie gasoline prices were as much as 10 cents per gallon more than elsewhere in the nation. By 1954 prairie gasoline was cheaper than elsewhere. Moreover, petroleum plants manufactured and distributed "bottled" gas – propane and butane – which provided heating and cooking fuel for farmhouses.[61]

However, from the standpoint of the total economy, petroleum's effects were not all good. For example, coal suffered from the competition of a new fuel. Although Canada imported much of its coal from the United States, Alberta mines had been productive, and their coal went East under favorable rail rate differentials. But the mines suddenly encountered oil competition and lost the favorable rail rate at the same time. In consequence coal became a sick industry in Alberta. By 1955 several large mines had closed and the government was helping unemployed coal miners find other work.[62]

Thus, within eight years Canada underwent a vitalizing experience in economic development. It is perhaps too early to assess the full significance of petroleum development – only eight years and some months have elapsed since the driller's excited cry at Leduc.

Creation of new wealth, fresh capital investment, and the diffusion of a versatile form of energy are the primary and immediate effects. Under the stimulus of oil and gas, western Canada registered marked gains in employment, income, investment, and population. However, petroleum development was part of a broader pic-

[60] Bank of Nova Scotia, "Impact of Leduc," 2.

[61] *Ibid.*, 4; Toombs, letter to author, May 9, 1955; Province of Alberta, *Budget Speech, 1950*, p. 4; White, *Prairie Progress*, 10.

[62] Province of Alberta, *Budget Speech, 1951*, p. 6; *ibid., 1955*, pp. 10–11.

ture of general economic growth. Thus, the indirect results must be assessed in conjunction with other forces at work.

In fixing perspective for an evaluation of the oil boom, an obvious comparison would be that of the gold rushes. Within their own setting and time, the gold rushes remain of great importance in Canadian economic history, yet an outstanding example – the Klondike – pales beside the oil boom. In 1898 miners staked 17,000 claims in the Klondike, but each claim was only 100 feet square, and 1899 gold production was valued at $16,000,000.[63] By contrast, oil claims represented millions of acres, and the value of oil production greatly exceeded that of gold.

Moreover, the gold rush represented individual effort on a large scale, with corporate activity coming later. On the other hand, petroleum development demanded corporate endeavor, and heavy capitalization, from the beginning. In addition, oil development was speeded by geography – the search for and production of oil proceeded at a faster pace on the prairies than it would have in mountainous terrain. In the frozen Klondike, new techniques were demanded, whereas oil companies imported a matured technology. Where the Klondike was difficult of access, western Canada in mid-twentieth century was easy of access by railroad, highway, and airplane.

Both gold and oil encouraged subsidiary development, industrial and commercial, but the boom towns of the Klondike waned and faded. Although oil, too, sometimes leaves a mere shadow of itself, it generally is a constructive industry, helping to support a broad economy. Where gold provided only a monetary metal the principal effect of which, in large quantity, was to increase world prices in the past, oil provided energy in numerous forms, plus scores of products used in a wide spectrum of manufacturing from cattle spray to candy.

Therefore, it is possible to correlate industrial expansion with petroleum expansion – as in the appearance of firms servicing the oil industry as well as the corporations which came in later to use the new fuels and convert the by-products of petroleum plants. By invigorating the business atmosphere with large expenditures for services and goods, the oil industry certainly attracted many of the other new industries and commercial establishments in the West, because prosperity is contagious and "oil" a magic word.

The provincial treasurer of Saskatchewan forecast that petroleum

[63] Harold A. Innis, *Settlement and the Mining Frontier*, IX (*Canadian Frontiers of Settlement*, 9 vols.; Toronto, 1936), 205.

may prove to be the most important economic event since the province was opened to settlement.[64] Divided by the pre-Cambrian shield, Canada functioned as eastern and western regions with unity a problem for earlier statesmen. Even today one argument advanced for the proposed transcontinental natural gas line is that it would be a unifying factor.[65] In that regard, oil already has had an impact upon national transport, providing a network of pipelines – as vital as railroads for a complex industrial economy.

But the greatest significance is that Canada in the short span of eight years came into possession of a veritable windfall, a tremendous source of new, dynamic wealth.

TABLE 1

Ownership of the Petroleum Industry in Canada

	1945 Book Value (Millions)	Per Cent	1951 Book Value (Millions)	Per Cent
Canada	$172	58	$578	47
United States	115	39	636	52
United Kingdom and all others	9	3	11	1
	$296	100	$1,225	100

Source: R. B. Toombs, Economics Branch, Department of Trade and Commerce, Ottawa, letter to author, May 9, 1955.

TABLE 2

Petroleum Exploration in Western Canada, 1946–1953

	1946	1948	1950	1952	1953
Land being explored:					
Millions of acres at year-end	20	55	131	208	183
Geophysical surveying parties:					
Maximum number during year	11	62	125	189	172
Exploration and development expenditures:					
Millions of dollars per year	12	50	165	330	365

Source: Imperial Oil Limited, *Reference Data, Canadian Oil Development* (Toronto, 1954), p. 6.

[64] *Recent Developments in the Canadian Oil Industry*, 14.
[65] Wilson, *The Oil Bonanza*, 7.

TABLE 3

Growth of Canadian Petroleum Reserves, 1946–1954

Reserve in millions of barrels at year-end					
1946	1948	1950	1952	1953	1954
72	500	1,100	1,680	2,120	2,207

Proven reserves by provinces, December, 1954
(barrels)

Ontario and New Brunswick	1,471,000
Manitoba	29,127,000
Saskatchewan	222,365,000
Alberta	1,928,479,000
North West Territories	26,172,000
	2,207,614,000

Source: Imperial Oil Limited, *Reference Data, Canadian Oil Development* (Toronto, 1954), p. 6; C. C. Lingard, Director, Information Services Division, Dominion Bureau of Statistics, letter to author, April 29, 1955, from Canadian Petroleum Association.

TABLE 4

Canadian Oil Production

PRODUCTION BY PROVINCES
(barrels)

Year	N.B.	Ont.	Man.	Sask.	Alta.	NWT
1947	23,129	131,295	..	540,117	6,770,477	227,474
1948	21,372	176,989	..	849,166	10,888,592	350,541
1949	19,544	260,670	..	782,188	20,087,418	155,528
1950	17,137	250,655	..	1,041,098	27,548,169	186,729
1951	15,551	197,171	10,698	1,249,281	45,915,384	227,449
1952	14,237	191,814	104,826	1,696,505	58,915,723	314,217
1953	14,738	299,685	653,514	2,797,888	76,816,383	316,689
1954	12,900	410,200	2,090,000	5,000,000	87,600,000	367,000

TOTAL CANADIAN PRODUCTION
(barrels)

1947	7,692,292
1948	12,286,660
1949	21,305,348
1950	29,043,788
1951	47,615,534
1952	61,237,322
1953	80,898,897
1954	95,480,100

PRODUCING OIL WELLS

	1946	1948	1950	1952	1953
Drilled during year	64	250	834	1,254	1,217
Producing at end of year	393	703	1,936	3,589	4,498

DAILY PRODUCTION AVERAGE
(Thousands of Barrels per day)

1946	1948	1950	1952	1953
20	34	80	167	219

Source: Dominion Bureau of Statistics, *The Crude Petroleum and Natural Gas Industry, 1952* (Ottawa, 1954), p. H-5, with marginal notations for 1953 and 1954; Imperial Oil Limited, *Reference Data, Canadian Oil Development* (Toronto, 1954), 6.

TABLE 5

Oil Consuming Units in Canada

HOMES, VEHICLES, TRACTORS

Year	Oil-heated homes	Vehicles	Tractors
1947	495,000	1,836,000	259,000
1950	740,000	2,601,000	377,000
1951	910,000	2,851,000	415,000
1952	1,088,000	3,150,000	444,000
1953	1,260,000	3,410,000	469,000

RAILROAD LOCOMOTIVES

	1948	1950	1952	1953
Steam, coal-burning	4,340	3,730	3,423	3,259
Steam, oil-burning		542	591	643
Diesels [a]				915

[a] Dieselization started in the late 1940's.

Source: Imperial Oil Limited, *Reference Data, Canadian Oil Development* (Toronto, 1954), p. 2; R. B. Toombs, Economics Branch, Department of Trade and Commerce, Ottawa, letter to author, May 9, 1955.

TABLE 6

Oil Consumption in Canada

RATIO OF PRODUCTION TO CONSUMPTION

Year	Canadian production (barrels per day)	Canadian consumption (barrels per day)	Per cent of production to needs
1946	20,841	223,322	9.3
1947	21,176	269,886	7.8
1948	33,800	289,930	11.7
1949	58,806	319,961	18.4
1950	79,709	367,254	21.7
1951	131,866	420,227	31.4
1952	168,825	466,962	36.2
1953	219,000	515,000	43.0

Source: Imperial Oil Limited, *Reference Data, Canadian Oil Development* (Toronto, 1954), p. 9.

TABLE 7

Refinery Production

SELECTED LIST OF PRODUCTS MADE IN CANADIAN REFINERIES SHOWING CHANGES IN OUTPUT FROM 1948 TO 1952

(Imperial Gallons)

	1948	1952
Aviation gasoline	14,431,816	16,469,121
Motor gasoline	1,204,400,950	2,025,718,219
Tractor fuel	43,955,237	13,082,116
No. 1 Fuel Oil	95,188,301	239,749,869
Diesel fuel	193,434,096	339,430,730
No. 2 and 3 Fuel Oil	187,822,196	544,068,196
Heavy Fuel Oil	688,177,459	956,764,917

Source: Dominion Bureau of Statistics, *The Petroleum Products Industry 1949* (Ottawa, 1951), p. C-6; *ibid., 1952*, p. C-6.

TABLE 8

Gasoline Price Trends

GASOLINE PRICE INDEX IN RELATION TO WAGE AND CONSUMER INDEXES

	1939	1946	1950	1953
Gasoline price index	100	111	140	147
Average wages and salaries, Canada	100	138	191	244
Consumer price index, Canada	100	123	163	183

Source: R. B. Toombs, Economics Branch, Department of Trade and Commerce, Ottawa, letter to author, May 9, 1955.

TABLE 9

Provincial Revenue

TOTAL ANNUAL REVENUE OF THE PRAIRIE PROVINCES, 1920–1954

Fiscal year ending in	Alberta	Saskatchewan	Manitoba
1920	$ 9,005,862	$ 9,903,885	$10,482,471
1930	15,829,865	14,346,009	13,992,504
1940	24,410,039	22,967,002	18,052,640
1948	57,209,572	53,251,280	33,304,555
1950	99,553,102	52,313,301	40,091,851
1954	197,043,200	82,742,924	56,727,947

PROVINCIAL PETROLEUM REVENUES, 1948–1954

Fiscal year ending in	Alberta [a]	Saskatchewan	Manitoba
1948	$ 1,472,682	$ 46,807	$ 11,000
1949		65,828	..
1950		113,126	545
1951		220,075	8,964
1952		679,953	19,846
1953		1,910,241	112,852
1954	96,399,235	4,974,900	115,163

[a] The annual figures available for Alberta between 1949 and 1953 do not appear to be computed on the same basis as those for Manitoba and Saskatchewan during the same period.

SOURCE: Deputy Provincial Treasurers.

TABLE 10

Index to Alberta Business Activity, 1946–1954

	1946	1954
Population	803,330	1,024,000
Retail Trade, Sales	$ 375,000,000	$ 932,475,000
Wholesale Trade, Sales	$ 241,133,327	$ 600,182,000
Manufacturing industries, value of production	$ 255,000,000	$ 567,360,000
Bank clearings	$1,441,386,752	$4,584,252,000

SOURCE: *Budget Speech, 1948*, pp. 25-26; *ibid., 1955*, p. 33.

SOME IMPLICATIONS OF THE RECENT LITERATURE ON THE HISTORY OF THE PETROLEUM INDUSTRY

A Review Article *

In view of the number of books, leaving aside the articles, that have been published on the petroleum industry in recent years, it would seem that the time has come for someone to make an interim evaluation of some of the implications they contain. Mental indigestion is endemic among historians, so a summary of views and ideas may be helpful.

No other industry has had its record so minutely examined as petroleum during the last fifteen or twenty years. Books published cover a wide range of topics. Included in the list of subjects are individual executives,[1] particular companies,[2] operations by regions in the United States,[3] development of regulation and critical analyses of regulatory measures,[4] price-making and integration as competitive factors,[5] legal relations, [6] and performance in foreign nations and regions.[7] One or two courageous persons have essayed evaluation of the world oil record in one volume.[8]

Parenthetically, it might be observed that the work still goes on. Histories of at least two large oil companies are in process (one near publication), the second volume of the Jersey Standard study is in the press, and a group at Northwestern University has been commissioned by the American Petroleum Institute to have a history of the domestic phases of the oil industry ready for the hundredth anniversary (1959) of Drake's discovery well.

The petroleum histories considered in this article raise problems of both a specific and a general nature. There are so many pitfalls in writing and evaluating petroleum history that a word of caution concerning a few of them may be helpful to scholars laboring in

* This article was presented as a paper at a session of the meeting of the Mississippi Valley Historical Association in Pittsburgh on April 19, 1956.

[1] See numbers 5, 21, 27, 28, 30, 33, and 34 in list at end of article.
[2] See numbers 1, 10, 14, 16, 18, 37, 44, and 45.
[3] See numbers 2, 11, 12, 13, 15, 22, 29, 39, and 42.
[4] See numbers 6, 19, 32, 40, and 46.
[5] See numbers 4 and 26.
[6] See number 3.
[7] See numbers 8, 17, 20, 23, 24, 25, 31, 38, and 41.
[8] See numbers 8, 9, and 35.

other areas. Methodology, definitions, and other considerations deserve careful attention from those who read as well as those who write economic and business history.

Perhaps it would be wise to dismiss cursorily some reactions to the quality of sources which must be used in both company and industry histories. As sources of fact newspapers must be utilized with great caution, and the more remote the time period covered the greater is the unreliability encountered. This is not to criticize destructively most news reporters, because they are compelled to gather data in a hurry and to meet deadlines. Of course, the press is an excellent source for gossip, rumor, and opinion. Trade journals are better for factual information and improve as the researcher gets nearer the present.

As to governmental investigations as sources of information, there is some basis for the assumption, it seems to me, that historians have trusted them too much. Almost all state and federal investigations are biased by their very approach; politicians conducting them normally have a definite goal in mind, and many have made up their minds before they pound the gavel at the opening session. Certainly they are not as objective as scholars would wish them to be. Furthermore, the line of questioning seldom results in the emergence of all the answers which the historian would like to have. For example, the historian wants to know not only the allegations against businessmen but also their measured defense as well as the truth between the two, if possible. Senator McCarthy recently provided an extreme demonstration of the difficulty of having fair investigations in a highly controversial field. The hearings which he conducted excited many "liberals" who never raised a voice at similar congressional treatment of managers of American business in the past. Certainly those hearings dramatize the shortcomings of congressional hearings as sources of historical evidence.

With reference to the matter of definitions, the concept of an "industry," which is almost a necessity for purposes of analysis, can be and often is limited and misleading. In practice, industry lines are, and usually have been, blurred. Throughout their history, as producers of light, heat, and energy, petroleum companies have been competing with producers and distributors of wood, coal, and artificial gas. Natural gas soon appeared, and electricity took over an alarming share of the market in the lighting field by the early years of the twentieth century. Petrochemistry brought the oil companies into direct competition with chemical corporations. Recently atomic energy is posing a competitive threat as a generator of light, heat,

and power, with solar generation just on the horizon. Even if one company produced and distributed all the petroleum and its derivatives in the United States, it would still have strong competition. If it ventured into foreign trade, it would meet enormous foreign corporations, not to mention national states operating their entire petroleum business.

A respectable body of historians has increasingly applauded the fact that businessmen are receiving more recognition than formerly as constructive factors in American history. This conclusion has been drawn with full knowledge of the destructive influences often exerted. As prime producers of goods and services in a dynamic, democratic society, firms large and small have been forces of sufficient significance to merit having their record assessed objectively. In the political sphere no historian would think of ignoring any person as important in his field of endeavor as the Standard Oil Company (New Jersey), the New York Central Lines, or the United States Steel Corporation have been in theirs. Furthermore, these firms, and others like them, cannot be divorced from political and social history, much less economic history.

While applause is being accorded comprehensive and objective company histories, no one should infer that these works can be fully adequate to the needs of the historical profession. A company history may well be interesting and revealing in itself, but in the long run it can be considered as only one brick in the edifice of the history of the entire industry which it represents, and, as such, a part of the economy and of society as a whole. Generalizations cannot be made on the basis of one study, though it may be of foremost significance in the ultimate writing of an industry history.

If the function of the historian is neither to condemn nor to condone but to understand, a prime requisite of historical research is to ascertain the motivation of the men participating in historical events. After the reasons for a decision have been determined, the historian may still record contemporary social disapproval of the act — may even express his own disapprobation — but, having some understanding of the situation, he normally finds it more difficult to be destructively critical of the decision and the results. Of course, if the reasons are flagrantly false and antisocial and the decision-makers are even worse scoundrels than normal people are, the historian may still place them in the Hall of Infamy. Since most accurate pen portraits usually have a predominance of gray tones, the chances are that the most careful practitioners will find that color most representative.

In order to understand motivation, the comprehensive view is essential. Both data and events should be examined and evaluated from as many angles as time will permit. This method of approach promises to produce the least distortion and imbalance in the final product.

Economic and business historians cannot rest satisfied with advancing economic factors alone in explanation of actual phenomena, be it one decision or a series of occurrences. Man is a social animal and in the economic sphere of his existence he is motivated by all forces of his personality. There is no alternative to according much attention to driving forces and the intellectual climate (customs, mores, roles, sanctions, laws, and fundamental assumptions regarding life) of men at the inception of a movement or during a series of events. The lessons men learn in their youth remain with them all the days of their lives and are changed only under pressure of events and circumstances. In the mass, businessmen are no better and no worse than the rest of us mortals.

Perhaps the comprehensive point of view can best be illustrated by examining the factors contributing to the emergence of the Standard Oil combination. Economic stimuli were many. They included the large geographic size of the United States, the construction of a national railway network, the creation of a large and growing national and international market,[9] the existence of a relatively large body of raw material, the availability of an effective and adequate labor force, the economies of large-scale operations, the prevalence of Anglo-Saxon common law giving rise to private ownership of sub-soil mineral rights and the law of capture, and the existence of almost perfect competition in this infant industry which made almost every moment a struggle for survival as well as a gamble for millionaire status. Fluctuations in business affected the actual timing of the Standard Oil combination. Driven to search for a variety of expedients to assure survival in petroleum operations during depression years clearly beginning as early as 1871, owner-managers of a few firms soon formed an alliance based on common ownership of properties.

Not the least important element in the situation was the presence of a group of men who responded to the enumerated stimuli and ultimately demonstrated the capacity to devise a system for man-

[9] Factors in creating the large and growing market were the elimination of regional and local markets by the relatively low-cost communication system, the growth in population, the development of urban concentration, and the continual expansion in the standard of living.

aging a large and growing enterprise. Their reactions can only be explained in terms of the ideas that men lived by in the dynamic, democratic society of the time, with particular reference to the fact that, in the economic sphere, the ideas of farmers and small businessmen, as the most numerous groups, were dominating. Certainly many of the most significant concepts may be noted in Gabriel's *Growth of American Democratic Thought*. Many of the ideas are non-economic. The immediate trigger of action for combination was a depression, which had made life, or threatened to make it, "nasty, brutish, and short," to apply words used by Hobbes in another connection two hundred years before.

Since similar conditions prevailed in other industries, particularly during the years of generally declining prices from 1866 to 1897, some of the recent studies in petroleum history may aid scholars in analyzing the record in other segments of the economy. Even if all factors mentioned are not present in lead or iron or copper, the method of approach may be helpful. Furthermore, assistance might serve as a much-desired stimulus, for there is no completely satisfactory history of a single industry in the country.

Such a comprehensive approach to problems of history obviously involves the necessity of utilizing a multiplicity of tools. Some of these may have been a part of the historian's early training, others may not.

Some information on science and technology seems almost essential in writing the histories of most companies and industries. In the history of the petroleum industry an elementary knowledge of chemistry sufficed for understanding the early refining process and the corrosion of pipelines. As science has become more complex and technology of refining almost inexplicably baffling, expert advice has become imperative to the success of the historian. It is easy to understand, for example, that in early processes distillation and treating resulted in loss of a percentage of every barrel of crude oil, but it is less comprehensible that in refining today more than a barrel of products comes out of a barrel of the raw material.

A rudimentary knowledge of accounting may also be extremely helpful in clarifying what has happened historically. One author attributed the rise in earnings and dividends of the Standard Oil combination after 1895 to the retirement of John D. Rockefeller and the institution of new policies by his successor, John D. Archbold. Examination of the accounts revealed that one of the major factors in the phenomenal growth in earnings was a change in depreciation policy after 1895; large sums had been charged annually for a num-

ber of years up through 1895, while after that date no such charges were made. That change could and did make a change in the earnings figure of up to $16,000,000 per year. Of course, the alteration of depreciation practice had to be weighed along with the general rise in prices after 1896, the increase in volume of sales, the growth of the gasoline market, and other pertinent factors before a realistic evaluation of the reasons for the expansion of earnings and dividends could be made.

Even elementary arithmetic cannot safely be ignored as a tool in assessing the profits of a firm. For example, in order to establish the reasonableness of earnings of the early Standard Oil group, it would seem sound practice first to estimate the cost of the money, and what might have been accumulated at prevailing rates of interest over a period of time. By taking the original capitalization of the Standard Oil Trust in 1882, by assuming the probable average rate of interest as 7 per cent, and by compounding annually, the accumulated total would be only about $4,400,000 less than the net assets actually shown on the books by the end of 1906 ($355,065,687 as against $359,400,193). It should also be pointed out that earnings were made on a higher and higher accumulation of capital. Outstanding stock remained at $98,383,300 par value for almost all years after 1899, but about half of the profits were reinvested and net assets rose from $196,700,000 to $660,400,000 in 1911. Earnings and dividends on net assets seem astronomical when measured in relation to capital stock, but appear far more modest when measured against actual investment. This kind of arithmetical perspective clearly serves a purpose in illuminating facts and dispelling foggy interpretations based on limited perspective.

An elementary knowledge of economic theory may also aid in making judgments about historical phenomena. For example, high earnings normally accrue to an innovator, one who introduces a commercially successful idea or product. Between 1882 and 1911 the Standard Oil combination had the advantage of three major innovations – one at the beginning of the period in the more systematic administration of their enterprise than any rival, a second based on patents granted by the federal government in the late 1880's for the refining of sulphur-bearing Lima-Indiana crude, and a third, the automobile, which consumed a product the Standard Oil refiners had difficulty in supplying under the prevailing technology of the period. In other words, throughout the period of this particular combination, the owners were reaping the profits of innovations

made by Standard Oil and others. These facts must be considered in any objective effort to appraise the level of earnings.

Failure to consider profits in the light of conditioning circumstances has been a chronic weakness and source of inaccuracy in Socialistic economic literature. However, though far from impartial, Socialistic interpretations of events in the petroleum industry serve a very useful purpose. They must be used with care, but they provide assurance that the historian need not get so impressed with the achievements of men in the industry that he neglect the shortcomings of administrators with regard to labor, to the most economic use of raw materials, and to behavior in the marketplace as stipulated by law. Socialistic interpretation proceeds according to formula, but it is a valuable antidote to eulogy and should never be ignored.

Students of the general historical scene, particularly those dealing with the twentieth century, have no recourse but to become better acquainted with, and to utilize, the fruits of the labors of economists. Only by so doing can historians develop satisfactory evaluations of corporate, industrial, and social behavior for passing on to the minds of young Americans, either by the textbook route or from the lips of lecturers. Empirical studies by economists are increasingly numerous and by force of circumstances deal with historical data. The conclusions, usually based on weighing of extensive statistical information, often are of the highest validity and deserve full recognition. Some of the implications of such studies are mentioned later in this article.

Historians must also get into the habit of analyzing the economics of a given situation in order to understand the motivations of actions taken by men in the past; members of the profession cannot be satisfied with merely recording the actions themselves, the hostile reactions, the rumors, and the allegations. Pipeline history provides a case in point. Ordinarily a pipeline must be filled to capacity at all times to be run most economically. All the traffic flows one way. Owners might make profits on a pipeline running at half capacity at the high rates prevailing in competition with teamsters in 1865–1866, for example, but some time had to elapse before these owners could get their money back. Competition of other pipelines tended to drive the rates down, and at Pithole, in the Pennsylvania Oil Regions, the four pipelines that were thrown into the area soon began to feel an economic pinch. The situation was aggravated by the dwindling of the flow from the wells in a few months. The ephemeral character of the Pithole pool, shorter in life than some but typical in this respect of many pools of the early oil industry,

helped to set the pattern of thinking about rates and combinations of pipeliners for years to come. Divisions of territory began no later than two years after the first successful oil pipeline was constructed. Apparently men thought that only a fool competes until he kills his business and loses his capital.

The economics of pipeline operation suggest a number of questions, if not conclusions. One economist now can say that the most economical way to handle the flow of oil from a given area is through just one pipeline.[10] Perhaps Standard Oil's Daniel O'Day and his men were not so far wrong in building just one big pipeline system for the Oil Regions and later just one for the whole country east of the Rockies. Is it valid to suggest, in contradistinction to prevailing legal stipulations, that not all privately owned crude oil pipelines should be burdened with common carrier status? Some economists think so. If economic realities are observed, what action should be taken with regard to the Hepburn Act and subsequent regulatory legislation? If law and economics could be made to coincide, which is extremely doubtful, the problem of setting equitable rates would still be present. Moreover, the conflict between law and economics presents real problems for the historian attempting to appraise oil pipeline literature and litigation and imposes upon him the difficult task of trying to decide where intra-industry conflict declines as a motivating factor and political expediency takes over as a prime force.

One of the corollary outgrowths of this discussion of definitions, tools, and methods is the almost imperative necessity of collaborative effort in writing definitive historical works within one lifetime. Few men want to take the time to train themselves in all the disciplines needed for writing comprehensive, analytical histories of firms or industries – history, government, law, economics, sociology, psychology, statistics, accounting, science, and technology. The normally ambitious historian may well prefer to become an entrepreneur and engage experts to help him in the different fields or to work as a member of a team of experts.

Another suggestion growing out of the foregoing discussion also comes to mind. Since special studies are multiplying at a rate too rapid for historians to read them all, much less assimilate them, the present situation calls for recognition of the synthesizer on a scale

[10] Leslie Cookenboo, Jr., *Crude Oil Pipe Lines and Competition in the Oil Industry* (Cambridge, 1955), pp. 128–29. His suggestion of one pipeline per field would not apply if the maximum efficient rate of production of the field should exceed, "say, 400,000 barrels per day."

hitherto unheard of. Some means of rewarding him (the reference is not exclusively to the writer of textbooks), as much as the basic researcher, must be devised. Then perhaps we shall have relatively quickly, as we are soon going to have in the domestic phases of the petroleum industry, some syntheses of available historical knowledge about many industries.

With these various general considerations in mind, it is now appropriate to ask what are some of the specific implications of the data found in these books surveyed? By pressure of time and space the comments must be limited to a few points, but perhaps some of the generalizations may be helpful.

Probably the most important single idea of any importance that has emerged from several of these studies is that oilmen and leaders of oil companies have been and are human beings, not ogres. Readers of Allan Nevins' studies of Rockefeller must come away from the volumes with an impression that Rockefeller was an outstandingly able man, remarkable in vision and accomplishment, though, like many men, with a number of not wholly admirable social attributes. The books by Giddens, Mathews, Mallison, and the Hidys all portray men reacting to stimuli in ways that seem natural for the times in which they lived. Under prevailing circumstances the reactions indicate that the men were certainly ambitious, but not necessarily predatory. A more sympathetic understanding has come from getting better acquainted with Rockefeller and Archbold, Seubert and Stewart, Benedum and Marland.

A significant approach to understanding the emergence of regulation of business practices has been advanced in the recent study by Arthur M. Johnson on American petroleum pipelines and public policy to 1906. In this instance regulation clearly grew out of intra-industry conflict. When competitors of the Standard Oil combination found that their economic power was inadequate for their needs, they turned to state and federal legislative bodies for aid, normally relying on local appeals first and finally having recourse to national authority for help.

Perhaps a word of caution may be pertinent at this point. One motivating element is never adequate to explain any situation. Origins of the move for passage of a federal interstate commerce act date back to a fight between the Standard Oil combination and its competitors. The struggle began in state legislatures and quickly went on to the national stage. Of course, the demand for regulation of railroads was nationwide, came from all segments of the economy, and was a product of conflicts between at least farmers, mer-

chants, and cities on the one side and the carriers on the other, to name a few of the interests involved.

Acceptance or evasion of governmental regulation and of social responsibility by business administrators must also be evaluated in terms of all the pertinent circumstances of the times. This is an old idea, but it merits reiteration. What is the total picture of behavior on the part of all participants, not just alleged misbehavior of some of them? Why did men behave as they did? What are the economics of the given situation? What social and political ideas influence the decisions of the men and institutions involved? What portion of the behavior pattern may be traced to early experience and training? What part is socially acceptable in the managerial group generally at the time? What part is not? Was the rate of acceptance of new rules of operation more rapid or less so than by other firms in the industry? By other firms of comparable size? How does the rate of response in one industry to the new rules laid down by society compare with that in other industries? These are a few of the questions that must be raised.

In connection with literature on the history of the petroleum industry, one great gap is encountered almost as soon as research is begun. Not a single attempt has been made to evaluate the regulation of marketing processes and the sale of petroleum products by municipalities and states. Numerous small studies or one large one need to be initiated and carried out on local ordinances, state laws, and the administration of both.

Another area of regulation requiring attention is the history of state regulation of crude oil production. Some summary evaluations of state laws dealing with the subject have been made, the latest being the volume edited by B. M. Murphy. Almost every approach to the subject has been legalistic and conservationist and does not give the conflicts or reasoning behind the changes nor the results of the administration of the laws on the books. Conservation has not been the only motivating factor in the passage of many of the enactments. If historians are to understand the actions of men in the past with reference to regulation of crude oil production, they must learn the reasons for passage of the laws, the provisions of the laws in all their ramifications, the measures taken to administer the laws, and the results thereof, be they social, economic, or political.

In passing it might be observed that the entire field of state regulation of all kinds of business activity could easily be given more attention by historians. The volume of laws and administrative actions probably exceeds those of the federal government and affects

the behavior of innumerable businessmen the country over. Observance of such laws becomes a matter of complexity for any company carrying on a nationwide enterprise. Here, then, is a subject for many a doctoral dissertation.

Experience in writing histories of businesses suggests that the time has come to evaluate the record of various governmental agencies with thoroughness equal to that attempted in the latest corporation histories. Moreover, the record of governmental agencies should be evaluated not merely for the war years, as has been done in some instances, but throughout their entire history, and not merely with reference to decisions reached but in terms of the social, political, and economic impact on American society. Has the record been any better than that of private enterprise? Are those agencies leading the American people along the paths that they want to go? The Department of Justice and all administrative organs are run by men, too, and they are as subject to error in judgment as administrators of businesses. Right now there is need for an evaluation of the performance of the Interstate Commerce Commission and the Federal Trade Commission, even if comprehensive analysis may lead to some adverse criticism of governmental behavior.

Several of the studies on the petroleum industry provide data for analyzing the character of competition regulated by governmental agencies. Among the contributors are Bain, Giddens, the Hidys, McLean and Haigh, Cassady, Rostow, Johnson, Cookenboo, and Wolbert. The industry speaks of twenty major companies. Sometimes the number is raised to thirty. The number of competitors actually varies from one region to another in the country. In any case, it is essentially what the economists call an oligopolistic industry.

Since the 1880's, price clearly has not stood alone as the competitive weapon in the petroleum industry. Horizontal and vertical combination, increasing expenditures of time and money on research and advertising, development of by-products, emphasis on quality and uniformity of quality, improved service in the form of speed and regularity of supply, and such fringe benefits as reduction of danger from fire and provision of rest rooms at service stations all must be placed in the scales along with other factors. Moves in and out of vertical and horizontal combination obviously have occupied a prominent position in the course of events over time.

Of course, price changes have not been forgotten by oilmen as a part of their competitive behavior. At the same time, frequent changes of the type characteristic of the first two decades of the

industry have been replaced by relative rigidity in the price structure. Changes are not made as often as under conditions of near-perfect competition.

This relatively slowly changing price structure gives rise to the question of whether or not effective competition has prevailed in the industry. After assembling and evaluating data covering the years 1920–1951, the author of *Price Making and Price Behavior in the Petroleum Industry* arrived at the following conclusion: "Generally speaking the competitive structure found in the petroleum products industry is an effective mechanism for assuring a steady supply of high quality products at competitive price levels and for the introduction of innovations in methods and commodities produced." [11] If the data, methods, and conclusions of Mr. Cassady successfully withstand criticism, his results would seem to merit immediate incorporation into books having wide readership.

Among many other interesting points made by Cassady, one of the most significant for the general public, and for governmental regulatory bodies, is the fact that firms which quote identical prices in an area may be strongly competitive. To support that contention he indicates that changes by one major seller must be made almost at once by others in the market, "otherwise there would be a strong tendency toward syphoning of business from one company to others"; "a price leader cannot raise his prices arbitrarily, since others may not see fit to follow or the price level so established would be attractive to marginal suppliers presently located outside the market"; and the identity of the posted price, the instance discussed being the tank wagon price, "is largely a fiction in that many if not most of the sales are made at prices at variance with the posted price." [12] This is surely a realistic appraisal of the existing situation in many industries, not merely in petroleum, and one that the Antitrust Division of the Department of Justice seems not to have recognized fully. The difficulty is for the law to catch up with the economists as they endeavor to work out generalizations which approximate reality.

Data on price policy in these petroleum studies may help historians and economists to generalize as to why predominant firms in an industry have often failed to maintain an established portion of the market. Jersey Standard's share declined between 1899 and 1911, that is, even before the dissolution decree of the Supreme Court.

[11] Ralph Cassady, Jr., *Price Making and Price Behavior in the Petroleum Industry* (New Haven, 1954), p. 345.

[12] *Ibid.*, 344–45.

Standard Oil Company (Indiana) held almost 83 per cent of gasoline sales in its area in 1910. Twenty-three years later the proportion was 22 per cent. Among other factors, the price umbrella established by Indiana Standard as the price leader apparently encouraged former sister companies as well as others to enter the lists of distributors and to grasp an increasing share of the market. A similar development is apparent in the case of Jersey Standard after 1911. Both situations are comparable to that which occurred in the history of the United States Steel Corporation after its formation in 1901.

In this connection, it is imperative to state that price policy obviously is not the full explanation of this phenomenon of the price leaders having difficulty in holding their "share" of the market. Profit margins prevailing in the youth of executives may exert a braking effect on price reduction. Emergence of widely dispersed new sources of supplies cannot be overlooked as an influence. Continued good earnings and increasing volume of sales during the period of relative decline of a company in a market may well lull executives into taking action slowly. Another factor may well be the fear of antitrust actions of the Department of Justice. Price reductions can arouse the ire of competitors and induce them to call on the federal government for help in their fight against the big unit in a particular industry or area. By being an ever-present threat the antitrust laws have helped to develop competition, as intended, but also may have resulted in prices being maintained at a higher level than distributors might otherwise have sought, thereby penalizing the consumer.

At least eighteen of the books examined touch upon or deal exclusively with petroleum operations outside the United States. From these studies readers can get an estimate of oil resources abroad and of their development, not to mention an evaluation of performance of oil companies in Romania, Mexico, and Venezuela, in the Near East and the Far East. Clearly evident is the participation of American companies in world markets since the 1860's, in transoceanic shipping and refining since the 1880's, and in producing crude oil abroad since the late nineties.

These developments point to a whole series of observations and suggestions. American products, capital, and techniques in the petroleum industry have been a factor in international economic relations for almost one hundred years and an element of significance in diplomacy for at least half of that time. American export of know-how has been extensive in the petroleum industry since the 1880's. Not the least significant contribution of American foreign

oil operations has been the strategic role of petroleum in the two World Wars. Events in foreign activities also had repercussions on the industry, the economy, and society generally in the United States throughout the entire period. Although early companies made some serious mistakes in judgment and there is no general agreement as to the degree of their social responsibility today, their record abroad has improved with the passing of the years. Creole Petroleum and Aramco, to name two, are perhaps representative of the many firms that have carried and are carrying not only capital and techniques but also the example of the American democratic way of life to many peoples in underdeveloped parts of the world.

If encouragement of combination for foreign operations was desirable at the time of the passage of the Webb-Pomerene act, then large-scale enterprise in foreign fields would seem to be a necessity today. If other than the majors in the petroleum industry decide to participate in foreign activities, they must combine, if not at the point of getting the original concession, then at least during the period of exploration and development. Jersey Standard expended $36,000,000 before producing a barrel of oil for export in Venezuela; initial capital requirements elsewhere may be lower or higher, but they are bound to be demandingly large everywhere. In almost every foreign area American companies have to negotiate with governments, either as owners of mineral rights or as sponsors of monopolies or nationally owned corporations. Small operators enter such situations at a distinct disadvantage; to play the game of discussing participation in an area with a national state requires experience, skill, capital, and power. Of course, a government owned, or partially owned, corporation might take over the responsibility of looking for and acquiring foreign oil, but the experience of the British government with Anglo-Iranian Oil Company indicates that such a method also has its disadvantages.

Two or three final issues might well be raised in connection with foreign activities in petroleum. (1) In view of the importance of oil in American foreign trade from the 1860's onward, should not historians give more attention to foreign activities of firms in other industries? Perhaps researchers would decide to qualify the generally accepted idea that Americans turned their eyes predominantly toward the United States itself between 1865 and 1900. (2) Is not one of the major problems of the American people to use the corporation, an instrument created by private enterprise, as effectively as possible for national purposes and for improving the welfare of as large a segment of the world's population as possible? (3) Since

American petroleum and American oilmen have been key factors in world oil for more than seventy-five years, can a definitive history of the American industry be written in terms of the record in the United States alone?

These recent publications bring many more ideas about oil industry development to the fore, but time permits only brief mention of the most significant. Those discussed are not closely interconnected and should be regarded as separate bits of grist for the mill of contemplation and discussion.

A consideration raised by certain of the volumes surveyed has to do with the common thought that the scientific era in American industry dates primarily from World War I. There is undoubtedly a measure of truth in the concept, but that element of accuracy need not deter students from properly evaluating the role of science and research in earlier periods. Standard Oil companies conducted formal research in lubrication from the early eighties onward, hired one of the leading practical chemists of the world to solve the problem of sulphur in sour crude in the later part of the decade, and were conducting formal research projects on a wide range of problems at Bayonne, Whiting, and San Francisco from 1900 onward. Some of them produced results of lasting impact on the oil industry and on the economy as a whole.

Moreover, the emphasis on the scientific character of the industry after World War I tends to underestimate the contribution of earlier scientists and practical men as well. Without the gradual accumulation of observed data, plus preliminary generalizations, plus knowledge from other countries that were in many instances more advanced than our own, the "scientific period" could not have been launched in this country. Habits of research date back to the 1880's and earlier in the petroleum industry. In how many other industries would such a statement have a measure of accuracy? That is an important question.

Students of mass production can find some fruitful ideas in the history of the petroleum industry. In the first place, mass production is a relative phenomenon; the plants of some Standard Oil units in the mid-eighties seemed enormous to smaller firms in the industry and the volume of annual output of the Bayonne refinery, for example, excited admiration for its size at the time. Emphasis on standardization of product, even though not on uniformity in packaging and trade names, early fulfilled one of the prerequisites for mass production. Furthermore, American plants were manufacturing for a world market, not merely for that of the United States.

Before the turn of the century petroleum refiners were using a continuous process. Was the petroleum industry unique? It is doubtful. What other firms and industries were developing parallel ideas in the last quarter of the century?

As a result of the decision in 1911 breaking up the Standard Oil combination and the existence of what some economists call workable competition since then, there is less concentration in the petroleum industry in 1956 than there was in 1911, even less than in 1912. What is the situation in other industries? In the economy as a whole?

What is the status of small businessmen in the petroleum industry? They have never been masters of their own fate any more than any human being ever has, their oft-repeated ideas of independence to the contrary. An extreme way of putting the change in status is to state that small businessmen have been freed from slavery to the whims of nature and of an unregulated market only to become satellites revolving around such suns as the leading oil companies. Both systems have advantages and disadvantages, and both were produced in the course of historical evolution. Similar developments have occurred in other industries, though not in all.

This sketch will have indicated that historical problems of an industry can be complex, but that does not mean that they should not be tackled. They should. Furthermore, the findings of researchers and writers should be given as wide currency as synthesizers of industry histories and textbook writers can achieve. There is a need today for much additional research of an original nature, but there is also a need, fully as great, to incorporate the results of work already done into broad summations of economic and social evolution.

RALPH W. HIDY

New York University

A Selective List of Books on the History of the Petroleum Industry

1. Anon., *The Royal Dutch Petroleum Company (N. V. Koninklijke Nederlandsche Petroleum Maatschappij), 1890 — 16 June, 1950* (The Hague, 1950).

2. Joe S. Bain, *The Economics of the Pacific Coast Petroleum Industry* (3 vols.; Berkeley and Los Angeles, 1944).

3. E. R. Bartley, *The Tidelands Oil Controversy: A Legal and Historical Analysis* (Austin, 1953).

4. Ralph Cassady, Jr., *Price Making and Price Behavior in the Petroleum Industry* (New Haven, 1954).

5. W. L. Connelly, *The Oil Business as I Saw It: Half a Century with Sinclair* (Norman, 1954).

6. Leslie Cookenboo, Jr., *Crude Oil Pipe Lines and Competition in the Oil Industry* (Cambridge, 1955).

7. F. B. Dow and D. C. O'Hara, *The National Petroleum Association* (Washington, D. C.).

8. L. M. Fanning, *Foreign Oil and the Free World* (New York, c. 1954).

9. L. M. Fanning, ed., *Our Oil Resources* (New York, 1945).

10. C. Gerretson, *Geschiedenis der "Koninklijke"* (2 vols.; Haarlem, 1932, 1936).

11. P. H. Giddens, *The Birth of the Oil Industry* (New York, 1938).

12. P. H. Giddens, *Early Days of Oil: A Pictorial History of the Beginnings of the Industry in Pennsylvania* (Princeton, 1948).

13. P. H. Giddens, ed., *Pennsylvania Petroleum, 1750–1872: A Documentary History* (Titusville, 1947).

14. P. H. Giddens, *Standard Oil Company (Indiana): Oil Pioneer of the Middle West* (New York, 1955).

15. J. P. Herrick, *Empire Oil: The Story of Oil in New York State* (New York, 1949).

16. R. W. Hidy and Muriel E. Hidy, *Pioneering in Big Business, 1882–1911: History of Standard Oil Company (New Jersey)*, (New York, 1955).

17. H. L. Hoskins, *Middle East Oil in United States Foreign Policy*. Public Affairs Bulletin No. 89 (Washington, D. C., 1950).

18. Marquis James, *The Texaco Story: The First Fifty Years, 1902–1952* (The Texas Company, 1953).

19. A. M. Johnson, *The Development of American Petroleum Pipelines: A Study in Private Enterprise and Public Policy, 1862–1906* (Ithaca, 1956).

20. C. N. Jordan, *The Romanian Oil Industry* (New York, 1955).

21. Ed Kilman and Theon Wright, *Hugh Roy Cullen: A Story of American Opportunity* (New York, 1954).

22. F. F. Latta, *Black Gold in the Joaquin* (Caldwell, Idaho, 1949).

23. Roy Lebkicher, *Aramco and World Oil: The Work and Life of Aramco Employees* (New York, 1952).

24. E. Lieuwin, *Petroleum in Venezuela: A History* (Berkeley and Los Angeles, 1955).

25. S. H. Longrigg, *Oil in the Middle East: Its Discovery and Development* (London, 1954).

26. J. G. McLean and R. W. Haigh, *The Growth of Integrated Oil Companies* (Boston, 1954).

27. S. T. Mallison, *The Great Wildcatter* (Charleston, W. Va., 1953).

28. J. J. Mathews, *Life and Death of an Oilman: the Career of E. W. Marland* (Norman, 1951).

29. R. H. Maybee, *Railroad Competition and the Oil Trade, 1855–1873* (Mt. Pleasant, Michigan, 1940).

30. W. L. Mellon, *Judge Mellon's Sons* (Privately printed, 1948).

31. R. F. Mikesell and H. B. Chenery, *Arabian Oil: America's Stake in the Middle East* (Chapel Hill, 1949).

32. B. M. Murphy, ed., *Conservation of Oil and Gas: A Legal History* (Chicago, 1948).

33. Allan Nevins, *John D. Rockefeller: The Heroic Age of American Enterprise* (New York, 1940).

34. Allan Nevins, *Study in Power: John D. Rockefeller, Industrialist and Philanthropist* (New York, 1953).

35. Harvey O'Connor, *The Empire of Oil* (New York, 1955).

36. Harvey O'Connor, *History of the Oil Workers International Union (C.I.O.)* (Denver, 1950).

37. C. S. Popple, *Standard Oil Company (New Jersey) in World War II* (New York, 1952).

38. J. R. Powell, *The Mexican Petroleum Industry, 1938–1950* (Berkeley and Los Angeles, 1956).

39. C. C. Rister, *Oil! Titan of the Southwest* (Norman, 1949).

40. E. V. Rostow, *A National Policy for the Oil Industry* (New Haven, 1948).

41. Benjamin Shwadran, *The Middle East, Oil and the Great Powers* (New York, 1955).

42. J. S. Spratt, *The Road to Spindletop: Economic Change in Texas, 1875–1901* (Dallas, 1955).

43. Samuel W. Tait, *Wildcatters; An Informal History of Oil-hunting in America* (Princeton, 1946).

44. F. J. Taylor and E. M. Welty, *Black Bonanza: How an Oil Hunt Grew into the Union Oil Company of California* (New York, 1950).

45. Craig Thompson, *Since Spindletop: A Human Story of Gulf's First Half-century* [Pittsburgh, 1951].

46. G. S. Wolbert, Jr., *American Pipe Lines: Their Industrial Structure, Economic Status and Legal Implications* (Norman, 1952).

BOOK REVIEWS

Designed for Digging. The First 75 Years of Bucyrus-Erie Company. By Harold F. Williamson and Kenneth H. Myers, II. Evanston, Illinois, Northwestern University Press, 1955. Pp. 384. $7.50.

For this book, which is the second of the Northwestern University Studies in Business History, both the authors and the company are to be congratulated: the authors for a thorough, objective, scholarly analysis of a major American industrial enterprise, the company for making this study possible. A history of Bucyrus-Erie alone would be valuable. Here, however, we have the story of the largest concern in the excavator industry fitted skillfully into the development of the industry as a whole as well as into the changing pattern of the national economy.

It is a complex story. When the original company got into the excavator business in the 1880's, it was making fairly simple steam shovels, used mainly in railway construction. In fact, the incorporators were railroad men. Daniel P. Eells, the most important of the group, was interested in both the Ohio Central and the Nickel Plate, and the original Bucyrus Foundry and Machine Co. was organized chiefly to manufacture equipment for the Ohio Central. Since then the product line has been widely diversified and has been in a state of constant technological change. The company had to keep up with technological opportunity in the excavator field and at the same time adjust its operations to a market that was unusually sensitive to fluctuations in the business cycle. It had to pick its way between the production of special-purpose equipment, tailored to specifications for a particular job, and the manufacture of a standard line of excavators, with the economies attendant on quantity production. It found quite early that both operations could not be conducted efficiently in the same plant. When it became desirable to add a new machine to the product line, a decision had to be reached on whether to try to do it within the existing organization or to acquire a concern already making the product. Such a decision, for example, accounts for the combination of Bucyrus, the leading manufacturer of large special-purpose excavators, and Erie, which rose rapidly to become the principal American maker of small standardized shovels.

Obviously the men who were responsible for the growth of the company had to be an exceptionally able group. There was, of necessity, a substantial representation of engineers in the managerial group. Although only one, W. W. Coleman, rose all the way to the top (President of Bucyrus Company, 1911–1927, and of Bucyrus-Erie, 1927–1943), it is clear that as a group they had much to say about company policy. Coleman's predecessor in Bucyrus, Howard P. Eells, son of the founder of the company, was a Cleveland businessman who is entitled to most of the credit for piloting the concern through the financial troubles of its early days and raising it to its position of leadership in the excavator field. There is thus an excellent opportunity here to examine contributions to the management of a highly technical enterprise made by individuals of varied training and experience.

One of the features that I noticed is a sort of cyclical change in emphasis in the problems with which management had to deal. At the beginning the basic decisions were concerned with design and production, including a constant search for new uses for power excavators. Then there was a struggle for markets as other companies entered the field. Next, as the Bucyrus enterprise sur-

vived the dangers of childhood and adolescence, including one receivership, came matters of organization and financial structure. In the 1920's the emphasis shifted to expansion and merger, highlighted by the marriage of Bucyrus and Erie and the union with the English firm of Ruston and Hornsby to form Ruston-Bucyrus. Finally, during the New Deal and the postwar period, management had to give a good deal of its time to industrial relations.

Putting all these elements together into a coherent and understandable narrative is no mean achievement, but it has been done. To a reviewer who still calls them "steam shovels" and whose experience has been limited to watching those employed on highway and building construction, plus an occasional dredge, the great variety of excavators made by Bucyrus-Erie has been most illuminating. But I think I can tell the difference now between a shovel, a dragline, and a clamshell.

If I may be permitted one complaint, it is about the format of the book. Its appearance is most attractive, and the numerous illustrations contribute to the understanding of the text. But its size is awkward. It is just a little inconvenient to hold, and it will not fit on the ordinary bookshelf. These may seem like trivia, but they may result in the book's being looked at rather than read. That would be unfortunate, because it is well worth reading.

JOHN B. RAE

Massachusetts Institute of Technology

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The Development of American Petroleum Pipelines: A Study in Private Enterprise and Public Policy, 1862–1906. By Arthur Menzies Johnson. Ithaca, Cornell University Press, 1956. Pp. xiii + 307. $4.50.

In his preface, Mr. Johnson explains that the original impetus for writing this book came when he found the "striking similarity" between the charges made against the practices of petroleum pipeline companies in the 1899 hearings of the United States Industrial Commission and those made in the Temporary National Economic Committee hearings some forty years later. In the intervening years petroleum pipelines had been declared common carriers subject to federal regulation yet the complaints, formerly against one company, were being made by a new generation of critics against several companies. What forces had operated to maintain a pattern that ostensibly had been subjected to change by public policy? To find the answer, Mr. Johnson was led to investigate the historical context of pipeline development from the appearance of the first gathering lines in the 1860's to 1906 when national public policy was established by the Lodge amendment to the Hepburn Bill and through the denouement of that action which included Supreme Court confirmation in 1914. The results of his investigation given in this book will interest and benefit a broad range of readers from students of American and business history to the business executives who have occasion to operate in the two areas of private enterprise and public policy.

The range of interest for Mr. Johnson's study stems from the fact that the principle he covers has a broader application than just to the petroleum industry. "In microcosm," he writes, "the development of pipelines is typical of what was happening throughout American industry in our post-Civil War age of enterprise." (P. viii.) The student of the oil industry, however, will be

particularly indebted to him. The focus he has centered on the role of pipelines in the competitive conflicts during the rough, early years of the industry gives a new and interesting perspective to familiar episodes of the period and to the materials of research in that field. The fact that he has drawn so heavily on published data — federal and state hearings and legislative records, books, periodicals, newspapers, etc. — might seem the basis of criticism or detract from the value of the book. In this reviewer's opinion there is no reason for criticism on that account. The nature of the study and the author's well-balanced analysis of the material more than justify the sources he has used.

In going back over the conflicts of those early years — the ill-fated South Improvement Company, the wars of rate discriminations among railroads, the fights and blockades along the pipelines, the attempts of Standard Oil opponents to develop pipeline companies, the successful efforts of Lewis Emery, Jr., and his Pure Oil Company, the government hearings, the attacks of Ida Tarbell — the author has brought out some convincing conclusions regarding the importance of pipelines and the use of public policy in the war of competition. Some of the bitterest conflicts of the industry were waged for influence in the transportation of oil and for many years that meant special rate arrangements with the railroads that dominated the scene. In the early 1860's, however, pipelines began to appear in the oil fields, first dooming the lucrative business of the teamsters, then becoming feeders to the trunk rail lines and part of the bigger battle for transportation control. From the outset, pipelines, the "weapons of enterprise," as Mr. Johnson calls them, were influential, capable of upsetting the well-planned pools of railroad men and refiners. As the strategic importance of pipelines was recognized, both railroads and oil companies built pipelines and eventually the conflict became one for control of those lines. In that contest the Standard Oil group was particularly adept and successful. At various times throughout the period, oilmen attempted to employ state public policy as a competitive weapon against their opponents. But there was little public interest in an essentially intra-industry affair. When public opinion was aroused, it was the whole concentration of power in the Standard Oil Company which was under attack. After 1900 other pipeline companies were beginning to compete successfully and the appeals for pipeline policy no longer came from within the industry. But the forces against the oil combination were powerful and out of that antagonistic atmosphere came national pipeline legislation. The subsequent ruling by the Supreme Court upholding the law made it one of far-reaching implications for private enterprise in general, but as it applied to pipeline operations it had missed the mark. "The pipeline amendment to the Hepburn Act was primarily the product of political rather than economic considerations," Mr. Johnson concludes. (P. 242.) "The economic basis of existing pipeline operations had become too firmly established to be changed by public policy decisions alone." (P. 242.)

Mr. Johnson has written a provocative book and in writing about pipelines he has made a contribution to the study of the oil industry. Heretofore the importance of pipelines in the industry's formative period had not been recognized, an error of omission which Ralph and Muriel Hidy have done much to correct in their Standard Oil history, *Pioneering in Big Business*. In addition to its separate merits, Mr. Johnson's book is an interesting complement to that volume.

ELIZABETH BRICKER CURRIER

Rockford, Illinois

Money at Interest. The Farm Mortgage on the Middle Border. By Allan G. Bogue. Ithaca, Cornell University Press, 1955. Pp. viii + 293. $4.00.

This monograph explores one aspect of the western farm credit problem during the late nineteenth century — the use of the land mortgage. Bogue purposely slights what the Populist, or his radical predecessor, claimed, as well as the arguments of rivals from the established parties, and deals with what he calls basic questions. What proportion of the original settlers used their land as security for loans? Why did these farmers borrow? What was the source of their funds? Who negotiated loans and what were their methods of business? How successful were the lenders in realizing returns on their capital? How successful were the borrowers in utilizing borrowed funds and eventually repaying them? What was the legal framework in which borrower and lender operated? In seeking answers Bogue employs three main lines of attack. He describes and analyzes the mortgage investments of one eastern family — John and Ira Davenport of Bath, New York — in the western states between 1854 and 1900 as an introduction to the problems of eastern investors who loaned extensively in the western states. He next sketches the career of an important western mortgage broker, Jabez Bunting Watkins and his Land Mortgage Company. Finally, he describes the use of land credit in two western townships before 1900 — Pebble Township in Nebraska and Kinsley Township in Kansas.

Professor Bogue makes excellent use of social science methods in developing his study. He clearly states his problem; he quantifies his data wherever possible; and his conclusions fall within the limits of his evidence. He also calls attention to other statistical studies which throw light on his own problem. He frankly recognizes that the Davenports were only one among many eastern families who invested in western mortgages, that numerous other land-mortgage corporations competed with the Jabez Watkins Company during the boom in such investments in the western states, and that analysis of two townships falls short of the desired coverage. As a result, his work carries conviction.

Bogue feels that the professional historian has cherished the charges which the agrarian radicals made against the moneylender and the mortgage, and that the novelist has equated the mortgage with catastrophe and the moneyman with heartless, grasping avarice. His conclusions from the data which he has analyzed furnish a somewhat different picture. He demonstrates that farmers did not pay a monopoly price for borrowed capital and that usury laws had little effect on rates of interest actually paid. Investors seem generally to have tried to avoid foreclosures as they wanted interest on their capital rather than direct land ownership. In the townships studied, rates charged by resident and non-resident investors seem to have been much the same. Moreover, the extent of farm mortgaging fell below the estimates made by contemporary local historians. One obtains a needed corrective when he views the farm mortgage problem from the standpoint of the methods and problems of the investor, which Bogue fully develops.

Nevertheless, Bogue recognizes the evil which accompanied the good. Local agents often functioned with too little supervision and gouged commissions from the settlers which they did not report to the lending agencies. Company officials often knew too little about the problems of farming and exerted little attention to encouraging borrowers to use their loans in a manner designed to give a reasonable chance of success. Eastern investors and western farmers

alike suffered at the hands of overly optimistic officials of land-mortgage companies.

Business and agrarian historians and those interested in the problems of historical writing will find Bogue's study highly useful. Well structured, modest and yet provocative, it furnishes a needed corrective to political and humanistic interpretations which have long held sway. When the author has accomplished his purposes so well one hesitates to ask for more. Perhaps, however, the study would have served a still more useful purpose if the author had dared to make fuller use of the political and literary materials related to his topic. Having analyzed the mortgage record of Kinsley Township, Bogue might well have given the reader a clearer and fuller picture of why farmers in that area helped send "Sockless" Jerry Simpson to Congress. The political historian describes Simpson's platform and the economic historian deals with land mortgages. The novelist who concentrates on regional themes connected with his own childhood gives an impressionistic picture of local sentiment on issues of the day. All are valid interpretations within limits. Students working directly within a field perhaps are best prepared to make the necessary correlation of their own material with that presented in other approaches. Perhaps the social scientist would make a still greater contribution if he relegated statistical data to footnotes somewhat more frequently and devoted a relatively greater part of his text to his analysis and its correlation with other approaches.

LEWIS ATHERTON

University of Missouri

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The Great Burlington Strike of 1888: A Case History in Labor Relations. By Donald L. McMurry. Cambridge, Harvard University Press, 1956. Pp. 387. $6.00.

Absolute objectivity is the sport of the gods. Mr. McMurry proves this in his book about the Burlington strike for the benefit of those historians who still doubt the fact, for he tries mightily (and honestly) to be above the smoke of a labor battle which in any case one would have thought had long since blown away. But it didn't blow away and he is not quite above it. Every now and again he relaxes from an immaculate academic posture and leans in the management direction. Had he made this leaning apparent at the outset he would have written the perfect academic study. Aside from this one factor he has written a well-nigh perfect piece of labor history.

Mr. McMurry's prose is clear, unostentatious and highly readable. His organization is balanced and tight. He has used the relevant documents (railroad and union archives) well and draws neither so close to them as to make the work pedantic nor so far away as to make it inauthentic. All of which makes it an authoritative work. No historian will need to touch the Burlington strike for a good many years to come.

This work is just a little different from anything yet attempted in labor history, and opens new and valuable territory in American history. For it is not one but three histories perfectly balanced: business, labor union and collective bargaining.

Mr. McMurry is most sure of himself and writes with most authority as a

business historian. The ample archives of the old Burlington line were made available to him and, as he says in the preface, they had much more depth than did the labor archives available to him. As a result he is well grounded in the lore of railroading, the administration of the various Burlington lines and in the personalities of the managers of the line.

Their position is made perfectly clear. It is a classical example of the attitude of the nineteenth-century businessman toward the "labor question." Labor is a commodity subject to the immutable law of supply and demand. It is not only futile for a union leader to attempt to stay the operation of these laws, but it is also wrong. These laws operate in the interest of industry, labor, and the public. What we call collective bargaining today was to the men who managed the Burlington Railroad in the 1880's no more or less than an attempt on the part of outside parties (the Brotherhood of Engineers) to stay the operation of these laws, to take over management functions. For management the strike was a crusade against the introduction of collective bargaining as, at best, heresy, and at worst, a mild brand of treason.

Possessed of this attitude management leaped into the fray with the moral fervor of a Cromwell and the grim efficiency of men trained in the tooth and claw school of nineteenth-century business competition. They refused to bargain collectively (as the Taft-Hartley Act now defines the term) from the outset over most union demands; demands moderate in nature and moderately presented by current standards. When the men struck, management ignored their existence and hired an entirely new working force. The new employees were protected with public police officers hired, armed, housed, fed, and paid by management. Management imported spies and private police to break the will of the union. They enlisted the aid of the courts to enjoin union boycotts and sympathetic strikes. Methodically, with grim and consistent moral purpose, and at the cost of many millions of dollars, they proceeded to crack the backbone of the union.

Mr. McMurry is somewhat less at ease as a union historian. While he understands clearly that management is to be judged by the going standards of business conduct (and so judges them) he fails to understand that the union men are to be judged by their own standards. They were trying to temper the extreme tooth and claw laissez-faire standards of their day by the introduction of collective bargaining. In this sense they were pioneers of a sort. They fought and died (in the sense that they lost their jobs) on behalf of the principles of unionism and collective bargaining. While Mr. McMurry goes to great pains to explain how consistent management was to its principles he fails to do as well by labor. For the main significance of this strike rests in the fact that it is an early, clear-cut, organized demand for collective bargaining as a principle of labor relations.

Mr. McMurry is strong again in the third aspect of his history: collective bargaining. He has a feel for the subject and gives a clear picture of this early attempt to implement this form of industrial relations now accepted as national policy. The book shows clearly how timeless the principles and methods of collective bargaining are. It deals with subjects like the going rate, job classification, public opinion, and negotiation techniques, which with minor changes are the stuff of which the present steel strike is made.

Many contemporary studies of collective bargaining have been made from the viewpoint of industrial psychology and labor economics. But it is sur-

prising how few studies have been made in the history of collective bargaining. Mr. McMurry's book is one of a few pioneer studies in this sense. A shelf of fifty such studies of the leading strikes might give us a different picture of collective bargaining than we now have. Let us hope that Mr. McMurry's fine book calls forty-nine scholars good and true to the archives.

ROBERT A. CHRISTIE

Lafayette College

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The Original Has This Signature — W. K. Kellogg. By Horace B. Powell. New York, Prentice-Hall, Inc., 1956. Pp. 358. $5.00.

This book is the biography of a successful businessman, not a history of the W. K. Kellogg cereal company. Will Kellogg lived three lives — first, he was a successful broom salesman and an employee of the Battle Creek Sanitarium; second, during his forties he developed the W. K. Kellogg Company into the largest manufacturer of prepared, dry, flaked cereals; and third, at the age of seventy, when many men are retiring, he started life anew as founder of the Kellogg Foundation.

His first life was dominated by a stern father, a broom maker, and Will Kellogg had resigned himself to a life of meager comforts, if not actual poverty. At the age of nineteen, Will went to work for his brother, Dr. John Harvey Kellogg, who was director of the Battle Creek Sanitarium, which had adopted the health food program of the Seventh Day Adventists. This program embodied hydrotherapy and complete abstinence from alcohol, coffee, tea, spices, tobacco, and, later, meats. Dr. John was much older than Will and the bonds of brotherhood between them were often strained, so much so, that years later their disputes were taken to the courts and Dr. John remained with the sanitarium; brother Will carried corn flakes to new heights of popularity.

It was while working in the sanitarium that John and Will Kellogg began to experiment in grinding and in flaking grains as substitutes for white bread. Somewhat accidentally, Will hit upon the formula that resulted in appetizing flaked foods. Priced at 15 cents, ten-ounce packages were first sent via mail to former patients of the sanitarium. Will wanted to advertise the new cereal, Dr. John thought it was contrary to the ethics of the medical profession for his name to appear in public places in connection with the food. Among other discoveries was that of making the first peanut butter, but when Dr. John insisted that the peanuts be steamed instead of roasted before they were ground, the trade was lost to more realistic competitors.

Expanding its horizon of advertising, the product began to appear in department stores and restaurants, and food jobbers were handling it. For two years following 1902, Battle Creek, Michigan, experienced a boom that was based upon the reputation of Battle Creek foods. No less than thirty wheat flake concerns sprang up in a city of less than thirty thousand people. Life savings were invested in fly-by-night concerns, many of which were merely stock selling schemes and never got into production.

One of the blessings in disguise that stimulated the dogged determination of Will Kellogg to operate the largest corn flake company in the world was a disastrous fire in 1906 that completely destroyed the old, inadequate frame building

that housed the growing concern. Before the ashes were cool, and on a holiday, an architect was summoned from Chicago and the new plant that resulted from the careful planning of Will and the architect was a modern structure that was located between two important railroads, the Michigan Central and the Grand Trunk. Sidings were constructed by each of these railroads, so that freight cars could be loaded directly from the plant. One of the largest shipments was a trainload of twenty-one cars shipped to one broker in an eastern city.

In addition to direct-by-mail advertising and salesmanship that was directed to food brokers, Will Kellogg took advantage of consumer advertising by means of house-to-house sampling. Newspapers and magazines, and, later, electric display signs, radio, and TV were used to carry the message of good foods to the American public. So immediate was the response, that the company was daring enough in its Chicago advertising to request that consumers in that city refrain from buying corn flakes for six months so the company could catch up with its orders from other places.

In running the company, and "running" is used advisedly in this review, Will Kellogg demonstrated many of the qualities known to have made successful entrepreneurs. He was a man with a vision and he had the determination to make that vision a reality. He was decisive, and he had confidence enough in himself to enforce his decisions. He knew how to handle men. He submerged his inner timid self under the force of his enthusiasm for his business and for his new product. That he was 100 per cent for Kellogg's was made manifest shortly after the First World War. During the period of a financial crisis for Kellogg's, a competitor offered to purchase the firm at Kellogg's own price. Will's immediate reply was to buy out his competitors. "Tell them to name the price."

At the age of seventy, Will Kellogg was ready to relinquish control of the Kellogg firm he had so successfully built up. He had developed a feeling of social responsibility for his wealth and he enjoyed aiding people who were deserving of financial aid, although he would not permit the beneficiaries of his generosity to express their thanks to him either in public or in private. The best way to accomplish the greatest good to those who were most deserving was to establish a Foundation to carry on this work objectively and anonymously, as far as Will Kellogg was concerned. In 1935, the assets of the Foundation amounted to $35,000,000, which were later increased by supplemental gifts to $47,000,000. Through wise investments and appreciation of its holdings, its total assets now amount to approximately $120,000,000 and this in spite of the fact that since 1930 it has given away about $50,000,000 and that in nine of the last fourteen years, the gifts have totaled more than its income.

Will Kellogg may not have learned to play as a young boy, and relaxation may have been difficult for him as a businessman, but he did enjoy living. He maintained large estates at Battle Creek, Michigan, and at Palm Springs, California. In 1934, he wintered at Dunedin Isles, Florida, just north of Clearwater. After a year or two of winter weather that was delightful to his taste, he found the winters in that state were subject to wider variations than he liked, so he decided upon a home near Phoenix, Arizona. It did not take long for him to decide that Arizona was not to his liking, so he shuttled back and forth between Michigan and California for his seasonal housing. Will Kellogg was not a man who made friends easily, in fact, after he had lived in California for many years,

he was heard to remark that he did not have three friends in the whole (Pomona) valley. Outside of his immediate household, his best friends were found in his stables of Arabian horses. Later three German shepherd dogs were his constant companions, the more so after he became blind from an attack of glaucoma.

That others may not have the torture of the pains and later blindness resulting from this disease, he gave generously to finance research and study of the causes and cure for glaucoma. While he was blind the last ten years of his life, he was not embittered by his affliction. A fitting tribute to Will Kellogg is found in the words of the minister who presided at his last rites in October, 1951:

> In looking around for a monument for Mr. Kellogg, some will see the many buildings that pay tribute to his name and genius: factories the world over, hospitals, schools and churches that he helped. Others will point to his Foundation and similar groups through which his beneficences were performed. But I would point to the numberless men and women, boys and girls, whose lives are enhanced by this man who made the most of his opportunity and, in turn, improved the opportunities for countless people.

F. W. Tuttle

University of Florida

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Bergdorf's on the Plaza: The Story of Bergdorf Goodman and a Half-Century of American Fashion. By Booton Herndon. New York, Alfred A. Knopf, 1956. Pp. x + 244. $4.50.

The dust jacket on this story about one of America's unique retail stores proclaims it to be "par excellence, a woman's book." Some female readers undoubtedly will enjoy the behind-the-scenes description of the creation of new fashions and the people who have made them, so entertainingly told by Booton Herndon, a free lance magazine writer.

However, the business historian looking for a full length study of Bergdorf Goodman will be disappointed. The organization of the book is neither chronological nor topical. Rather it consists of a series of stories about various phases of store operation and about some of the more colorful store personnel. There is more than a generous supply of amusing anecdotes, such as that about the magnate who purchased two fur coats within fifteen seconds — one for his "new little lady love" and one for his wife's sister, who caught him in the act of buying the first. But there is no information on over-all measures of operations, such as sales volume, profits, costs (except for some individual fashion items), and wages and salaries (except for occasional mention of the earnings of a few higher-paid skilled workers). Mr. Herndon even refuses in many cases to be pinned down on dates; important events in the history of the store occur "by the time the war came," "one morning in the 1920's," or at no specified time.

Actually, behind the anecdotes and clichés there is a significant story of merchandising and of the role of the merchandiser. Edwin Goodman, raised in a middle-class business family in upstate New York, received his apprenticeship in the women's clothing industry from Herman Bergdorf, a successful New

York City manufacturer of ladies' tailored suits. With capital supplied by his family, Goodman in 1903 formed a partnership with Bergdorf, which marked the origin of the firm. When Bergdorf retired a few years later, Goodman was in complete control of the custom tailoring and dressmaking establishment, then located on Thirty-Second Street near Fifth Avenue. Following the trend of northward migration of retailers in the period prior to World War I, Goodman moved his prestige store to a new site on Fifth Avenue between Forty-Ninth and Fiftieth Streets. Around 1920, Goodman saw the potential market for quality ready-to-wear dresses and was important in convincing manufacturers of women's clothing of the necessity to correct their slipshod methods. Success in introducing fashionable ready-to-wear clothing seems to have been Goodman's major contribution to retailing, although the store continued its custom department. The building of Rockefeller Center resulted in Bergdorf's move further north to the Plaza, but this bold step was tempered by Goodman's conservative financial policy of planning his store building for possible small unit rentals in case of the store's failure to prosper in its new location. In recent years, management, headed by Andrew Goodman, son of the founder, has been concerned with broadening the store's base of customers — to attract the near-wealthy as well as the wealthy, to gain the trade of the wives of vice-presidents before the husbands become vice-presidents.

Although the purpose of the book is recognized to be popular rather than scholarly, the author's emphasis on "human interest" overshadows the message of business achievement as well as much of the real drama of operating a business enterprise. Certainly the book, without organization and without documentation, contributes little to our understanding of retailing. It contains neither an objective analysis, such as might be expected of a scholarly study, nor a picture of the company from the "inside," which might be derived from a history written by a member of the firm. Likewise, there is no effort to "capitalize" the experience of the company, that is, to analyze its past experience in such a way as to be of use to management in formulating policy. This reviewer finds it difficult to see how new executives can gain from the book a systematic understanding of store policies and of the ways in which they have contributed to the development of the company. Granted that each historical event is unique and that the forward-looking businessman looks forward, there are many recurring business situations, the most obvious of which are adjustment to depression and war, where a knowledge of how the company faced a similar problem in the past can be of considerable value, particularly to those who have not lived through the experience.

There is no statement that the book was commissioned by the company, but the obvious implication is that it is the "official" story. The author apparently obtained all of his data from interviews with Bergdorf Goodman executives and employees plus a few people connected with the garment industry.

In order to understand better the role of business in America, and particularly the marketing process, we need careful studies of all types of retail enterprises. It is hoped that a prestige store like Bergdorf's will be the subject some day of a serious historical study comparable to Emmet and Jeuck's history of Sears, Roebuck and Company.

JAMES H. SOLTOW

Russell Sage College

Harvard Studies in Economics and Industry

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